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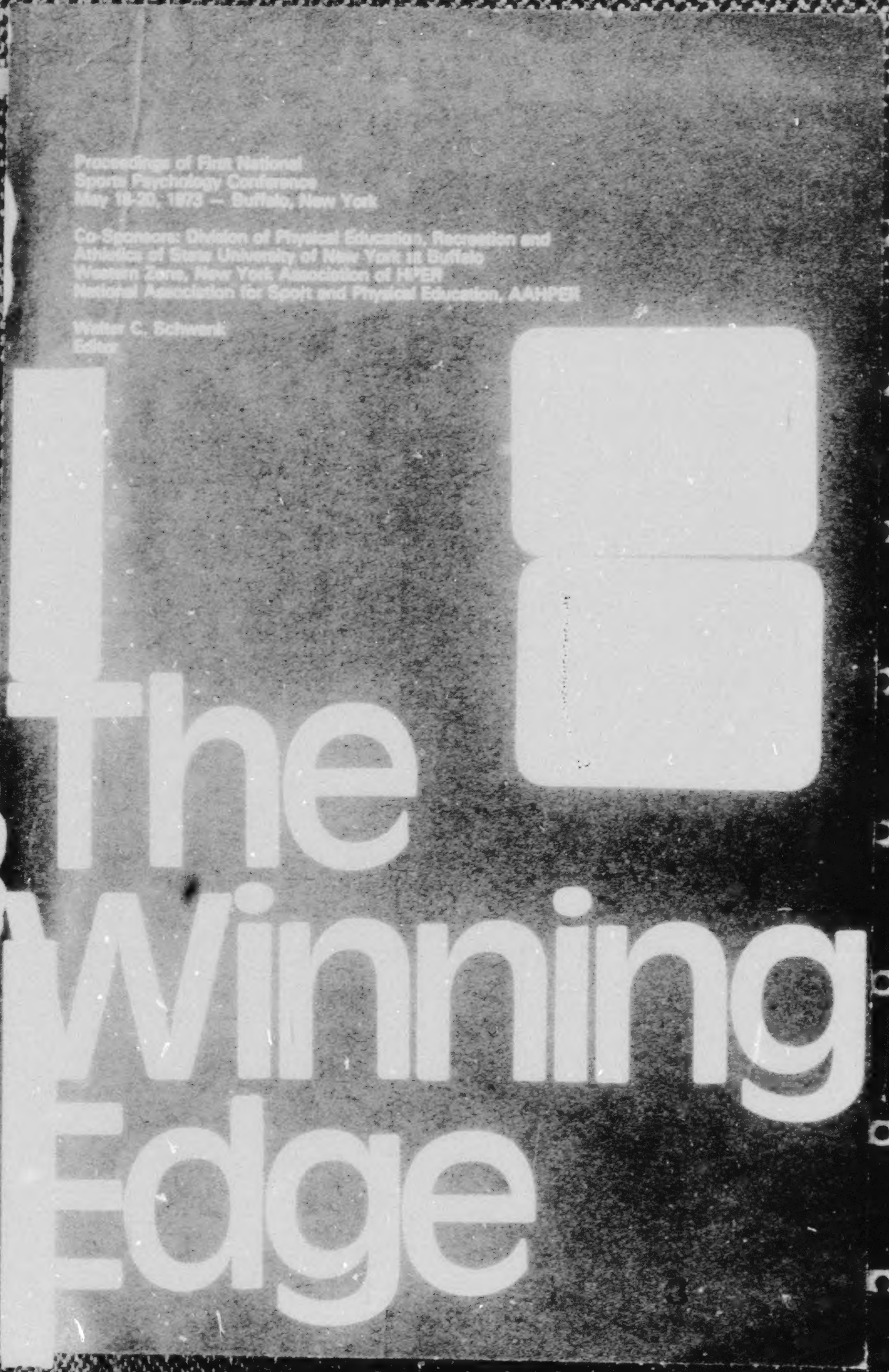
ABSTRACT

Eighteen speeches are included in these proceedings of the National Conference on Sports Psychology, held in May 1973. The purposes of the conference were to provide practical applications of psychology in the coaching of sports and to assist sports psychology instructors and men and women coaches as they work with student athletes. The 18 speeches are categorized under six general topics: (a) athletic achievement, (b) behavior, (c) special interests, (d) learning, (e) teaching and coaching, and (f) women in sports. The self-concept of the winner and the relationship of personality to athletic achievement are discussed in the first section. Stimulus, motivation, and aggression are discussed in section 2. In the special interest section, sports psychology is related to football, wrestling, cross-country, and hockey. There are two titles in the fourth section: "Learning and Performance at the High Skill Level" and "Imagery and Affect in Motor Skills." The fifth section includes presentations on teaching sports psychology, developing values through sport, and coaching in an era of individual awareness. The section on women in sports includes a discussion of humanistic psychology applied to coaching women and a presentation on public attitude toward women in sport. (HMD)



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Co-Sponsors: Division of Physical Education, Recreation and
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Walter C. Schwank
Editor

The Winning Edge

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Foreword

The National Conference on Sports Psychology, "The Winning Edge," held at the State University of New York at Buffalo, May 18-20, 1973, was the culmination of four years of concentrated effort by a Sports Psychology Task Force appointed by the executive council of the Division of Men's Athletics (now National Association for Sport and Physical Education).

Members of the Task Force were:

Walter C. Schwank, University of Montana, *Chairman*
Harry Fritz, State University of New York at Buffalo
Reuben B. Frost, Springfield College
John Lawther, Emeritus, Pennsylvania State University

Cosponsors of the conference were:

Division of Physical Education, Recreation and Athletics, State University of New York at Buffalo
Western Zone, New York State Association for Health, Physical Education, and Recreation
Division of Men's Athletics (now American Association for Sport and Physical Education), AAHPER

Cooperating Associations were:

Eastern District Association for Health, Physical Education, and Recreation
New York State Association for Health, Physical Education, and Recreation
Division of Girls and Women's Sports (now National Association for Girls and Women in Sport), AAHPER
National Council of Secondary School Athletic Directors
National Council of State High School Coaches Associations

The theme and organization of the conference are best explained as follows:

Thrust of Conference:

Practical applications of psychology to the coaching of sports

To help men and women coaches as they work with the student-athlete

To assist college sports psychology instructors

Opportunities for:

Open discussion, questions and answers, during and following presentations by leaders in the fields of psychology and sport psychology

Small interest group meetings

Interaction and exchange of ideas with outstanding leaders in the field of sports psychology and with successful coaches.

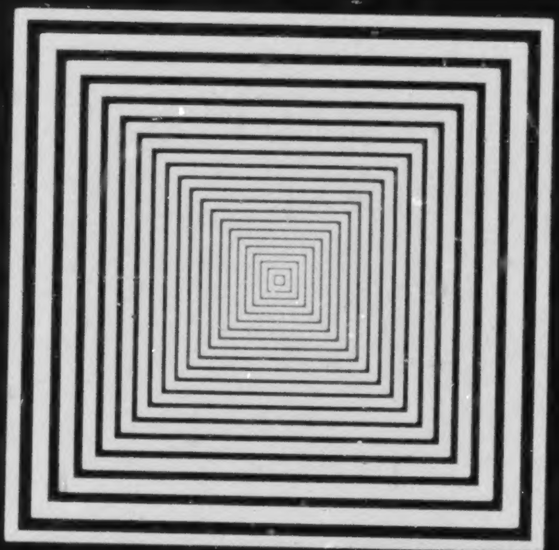
There has been a great demand by coaches for a practical working conference on sports psychology. They work under the "win" pressures of coaching and realize that, in today's competitive sports world, psychology plays a vital role in obtaining maximum performance from a player and/or team. In fact, many coaches state that "the winning edge" is determined by the psychology employed in preparing the athlete and team for peak performances in crucial contests. Techniques, strategy, offenses, defenses and similar variables are conducted on an equal basis by most coaches but the mental preparation and "set" for peak effort is the most inconsistent but vital variable.

This conference partially fulfilled the coaches' needs. However, additional conferences of this nature are needed. They should be sponsored on a regional level so they can be available to large groups of interested people at minimal cost in dollars and time.

It is hoped that these proceedings will be of value to the practicing coach and teacher of sports psychology.

Walter C. Schwank
Editor

Athletic Achievement



The Self-Concept of the Winner: What If the Dream Comes True?

Eugene L. Gaier
State University of New York at Buffalo

In the extraordinary spectacular called the world of sports, watched with a mixture of fascination, awe and voyeuristic and macabre contempt, it may be overlooked that those who prepare the players grapple with matters of little concern to the spectators. They often try to uphold a standard of public performance — namely winning — that has been eroded by private practice in the name of survival, recruitment, shaving points and other unsavory but commonly denied practices.

Coaches agonize about the morals of their business-oriented, individualistic school boards in which pushing, shoving, conniving, image making, and huckstering have brought undeniable success to athletes as well as themselves. But public policy in sports events that bear heavy responsibilities for their destiny and the public is another matter. Athletic efficiency and crew-cut precision in carrying out objectives cannot be confused with the strategic integrity that sees the public interest as a whole, the planning that makes winning greater than the sum of the parts, even greater than loyalty to ideals or to sacred institutions. Of late, the athletic world has had particular trouble with these distinctions when so much has changed so swiftly. The shift to play for the sport or how one plays the game has coincided with technological change which exalts information and builds data banks on athletes (7) with devices that invade privacy, give instantaneous dossiers, and where concern about questionable practices seems to evoke a shrug accompanied by the advice, "Shut up and slide!"

All this has coincided with the use of men for whom the work ethic has ceased to mean either work or ethics. Thus, the worshipping of winning comes from manipulating men and money. Of course, we assume that this must be an honest game. To "throw a game" destroys the inner moral purpose which makes it worthwhile. But it is failure that touches the most sacrosanct myths and endangers them at a point of the greatest vulnerability. Thus, to win is all — gouging the groin of the opponent and seizing the jugular (never to be seen, even when used and encouraged).

We see the athlete as a splendid epitomization of man, de-emphasizing what he is as an individual. We feel as though we ourselves personally had achieved something. Weiss points out that by representing us, the athlete makes us vicariously become completed men (13). We cannot help being pleased by what such a representative man achieves. The excellence that the athlete wants to attain is a superiority greater than that attained before. What he once achieved and what he might now achieve is an excellence relative to some particular period of time and circumstances. Later, or elsewhere, a superior state or performance will perhaps be produced, thereby making clear that man's final limits had not been reached before. One looks forward to this as long as men compete with one another.

William James recognized America's "exclusive worship of the bitch-goddess-success. That — with the squalid interpretation put on the word success — is your national disease." For many athletes, the Horatio Alger boy is the key to the meaning of the success myth. Alone, unaided, the ragged boy is plucked into the maelstrom of city life. But by his own prowess and luck, he capitalizes on one of the myriad opportunities available to him and rises to the top of the economic heap. Recast into the present athletic scene, this belief is in the potential greatness of the athlete, the equation of the pursuit of money with the pursuit of happiness and of athletic success with spiritual grace. Simply to mention these concepts is to comprehend the brilliance of Alger's synthesis and the dream come true for the coach, parents and school.

In this article, two areas concerning the winner will be explored — the self-concept and dynamics of winning and the winner, and the after-effects of winning and implications for those who prepare the person to believe that winning is all.

WINNING AND THE WINNER

The oft-repeated cry, "It is not the winning, but the taking part, not the conquering, but the playing fair," is enough to bring tears to the eyes of the most naive coach exiled to a fourth-rate school. While this may be mouthed for the press and boy scout pow-wows, athletes are trained to win. As Paul Weiss asserts:

> If a player would win, he should try to win, should strive to win, should want to win. To obtain maximum results in a game, he must give himself to it. He can then sometimes come close to getting what he desires. And this he will do if he is a true athlete. (13:176)

Romantics may tell us that the ancients were content merely to participate in the game. Not so, writes Erich Segal:

> The single aim in all Greek athletics was — to win. There were no awards for second place; in fact, losing was considered a disgrace . . . . The ancient Olympic victor may have won merely a simple wreath, but when he returned to his home town, gifts were lavished upon him, and he usually received an income for life. (12:606)

When the athlete engages in a sport, he may attribute the outcome of his participation to one or more causal forces. There exists the tendency to ascribe responsibility to personal forces (e.g., ability and effort) or to impersonal forces over which he has little control (e.g., situation and luck) (1). But attribution of responsibility has been shown to be related to the nature of the outcome, the discrepancy between expected and actual outcome and to personality variables such as self-esteem and the need for achievement and approval (5).

Even the coach comes in for censure (11). For example, John Dobroth, seven-foot high jumper and law student at UCLA, lamented that:

> . . . coaches are so sure winning is important — and that they know how to go about winning — that any means used to improve performance is justified. Thus, they manipulate the man without regard for what is really healthy for the individual make-up of that person. They may not, and I've seen it, talk to that athlete for days at a time. They must request that a boy compete or train while injured. They may reflect on his masculinity. All to get him to perform on a higher level. I don't accuse these men of overt cruelty. They simply do not see that improving at track is not

> worth the athlete's psychological or physical well-being. If a "soft" or insecure boy is intimidated by a strong-willed (suntanned, buttondown) coach, he will feel guilty for not coming up to this strong figure's conception of an athlete and man.

The winner, by just being, appears to be a very vulnerable creature. And once the character as a winner becomes in any way tangible, every winner is saddled with the obligation to compare his own features to those of the ideal in his sport. To define what is the winner, rather than to take it on faith, sets up the machinery of individualism; for every athlete enters into the comparative process in order to be rewarded by feeling and being treated as a special person with reverence. For even after winning, the athlete — either on his own or pushed by his adoring public — seems forever to be seeking to find some manner of living in which he can feel authentic, worthy of being respected, dignified. The athlete's goal (not only to possess, to win, to wield power) also involves material things — aids to creating an inner self which is complex, variegated, not easily fathomed by others because only with such psychological armor can a person hope to establish some freedom within the terms of class of winners. Thus, when questioned as to why they were endorsing certain products, a rewarding sideline for hero athletes, an article in *The New York Times* (April 1, 1973) noted that athletes' reasons for being lured by Madison Avenue's siren song were:

> First, of course is money . . . . and since an athlete's career is generally a short one, often hinging on the condition of his-her knees or Achilles heel, it is one occupation where the "get-it-while-you-can" attitude about money often prevails . . . . then there is the prestige factor . . . .

But even that is not enough. The article continues:

> A spokesman for Brut explained simply: "By using guys like this that are real he-men, you make the average guy feel he can use something like a men's cologne without feeling self-conscious about it."
>
> Not every athlete, of course, is eligible for commercial endorsements. "You have to be a superstar," said a man closely involved with commercials, "and you can't have any moral or family problems. This eliminates guys like Fritz Peterson and Mike Kekich (New York Yankees who swapped wives) and Lance Rentzel (a Los Angeles Ram who has been arrested both for exhibitionism and possession of marijuana)."

As this writer has indicated in earlier papers concerning athletic success (3, 4), one must assess risk-taking tendencies based on the individual's need to achieve as well as to test limits. More important, it may be that success in athletes who produce new forms of behavior may be rooted in the person's ability to make himself into a culture hero able to attract fans and to provide daily drama both with his past struggles and his current triumphs. His productivity, as underscored with winning, may then reflect a combination of successful feats on the playing field, coupled with a flair of charisma that attracts followers and worshippers. The subsequent mystique may be the product created — after the winning — rather than the actual physical feat itself. In fact, the production of novel or risqué or statistically infrequent responses commonly associated with winning may not even be in the playing aspects of a sport as in the production of a sense of drama or extravaganza or even burlesque. By so doing, the winner may even pander to the most unworthy impulses of his fans.

By contrast, there may also be the over-evaluation of the winner, who, perceiving improvement through practice and denial of impulse satisfaction as meaningless and without challenge, is at a loss when he must attempt a performance without the knowledge of basic skills which he may have deliberately avoided learning. Ironically, the winner may become the very agent responsible for his losses.

An athlete once was, and can still be, treated as a sacred being who embodies something of the divine in him. He is credited with the dignity of embodying a supreme value. While functioning as a single organic being, self-continued and well-geared toward the future, "he is seen, through the help of a ceremony (e.g., Olympics), to be adjectival to a more remote reality. The athlete and those who attend him are content to accept the fact that he is an unusual man, exhibiting and achieving what most men do not" (13:153).

Factors in Success

What contributes to winning? Luck, taking advantage of opportunities that one perceives, making the most of individual potentialities? Whatever, success must be won. It is not automatic or a gift in athletics; it encompasses training, guidance and knowing how to maximize one's abilities, plus having the motivation to employ one's abilities and willingness to postpone immediate satisfactions and pleasures for the sake of larger, more distant goals. There must also be a flexibility and willingness to adjust to new roles and activities when they contribute to winning. The athlete must have opportunities to learn how to use his capacities and to assess his strengths and weaknesses and be willing to adjust realistically his levels of aspiration (8).

AFTER-EFFECTS OF WINNING

In sports, success in one area often becomes the stepping stone to success elsewhere (that is, there is the transfer of learning or of success). In fact, this is too frequently the first realization when the dream comes true. But the effects of success are fickle, as any coach knows and one must learn to deal with them. While winning typically leads to the need to taste more and greater success, frequently one finds the reverse. For the athlete may want to aspire to greater records; but he might also want to play it safe. If he is confident of repeating past successes, he is likely to raise his level of aspiration in the hope of winning greater approval, status, prestige or more space in annals of sports records. If he is not confident that he can succeed at a higher level, he is more likely to hold his level of aspiration constant or even lower it to ensure continued success.

If one could predict the after-effects of winning as simply an either/or condition, the life of the coach would be tame. But the development of success and the taste of victory often are in conflict. Repeated success tends to increase self-confidence and causes the individual to expect to succeed in whatever he undertakes. Now, one must deal with the generalized expectation of success. In high school, with the prestige (9) associated with athletic success for boys (as well as its over-evaluation in the greater society), the high school athlete may not be equipped to deal with this narcissistic over-evaluation that is buttressed by money, girls and various forms of hero worship. Of course, winning may increase the athlete's motivation. After reaching the level of aspiration he has set for himself, the athlete may derive enough satisfaction from his success and prestige to be willing to put forth even greater effort in the hope of further successes.

Only the most atypical athlete would not want to publicize his success. He wants others to know of his success to increase his prestige and status in their eyes. This can vary from overt boasting that has been the basis of many best sellers of jock-types who have made the big time to the more sophisticated, off-hand manner affected by late-show talk types.

In the film *Privilege*, a story is told of a rock superstar with a very special gimmick. Silly as it may sound, during his performance, symbolic members of the establishment appear, whip him, and kick him about on the stage. These deeds automatically make him the living equation of any misunderstood, trodden-down young person. Worshipped fanatically by his fans, this hero of pop culture is eventually able to wield control over both church and state. Rock superstars and athletes have a certain kind of power following their triumphs. They are often treated like gods; their fans react to their utterances as if they were papal epistles. At the risk of hyperbole, one might suggest that the relationship of the hero — superstar or superathlete — is inevitably fascistic. And this attitude merely exaggerates this relationship to illuminate the power a mass-cult figure eventually might command.

How much satisfaction the athlete experiences following his winning depends on three major factors: a) the value attached to the activity; b) the prestige associated with the activity in which he participates (for example, in athletics, more prestige is associated with football and baseball than with minor sports such as track or tennis); and c) the attitude of significant people towards his successes. Parents are prouder of sons who obtain varsity sweaters than Phi Beta Kappa keys. And these attitudes reinforce athletic values and color life styles and attitudes. Thus, the athlete who experiences frequent success tends to develop a generalized expectation for future success in other areas.

But in the athletic world boys are called upon to make sacrifices for greater rewards later. Thus, training, being treated as a child with dietary restrictions, sexual denial, even bed checks for adult males often necessitate postponing many pleasures that the athlete might enjoy during these years. Parents may exert pressure for the boy to achieve, often encouraging him to aspire to unrealistic goals. The literature is replete with stories of aspirations in sports that are completely out of line with the athletes' capacities. These aspirations have been shown to be related to intellectual level. For example, the bright adolescent will not aspire to be a football player, for example, if he has little interest in sports and little capacity for football even though he recognizes the prestige and glamour associated with a football hero. But the less bright adolescent will want to be a football hero because it is glamorous, not because he especially likes football or has the ability to play well enough to be outstanding. This reasoning is in keeping with the notion that those with low self-esteem (high measures of social inadequacy, inhibition of aggression and depressive tendencies) are more likely to be influenced by persuasive communications that those with high self-esteem. In addition, those with a low self-esteem and a fear of failure also experience reduction of their own social value. To aim to win in a sport with prestige has more than a little redeeming value in their search for social support.

Dreams of a Sleepless Night

But even winning has its toll. Often, with winning there results a conflict between the libidinal desires of a person and his ego, the expression of his instinct of self-preservation, which also contains his ideals. In 1915, Freud pointed up the surprising and often bewildering situation that people occasionally fall ill precisely because a deeply-rooted and long-cherished wish has become fulfilled. It seems as though the winner cannot endure his bliss of the causative connection between this fulfillment and the falling ill. In his essay, "Those Wrecked by Success," Freud observed that ". . . it is forces of conscience which forbid the person to gain the long-hoped-for enjoyment from the fortunate change in reality. It is a difficult task, however, to discover the essence and origin of the censuring and punishing tendencies, which so often surprise us by their presence where we do not expect to find them" (2). St. Theresa's observation is more pithy — "More tears are shed over answered prayers rather than unanswered ones."

Dissatisfaction — even after the game is won — may be experienced when the performance falls below the level of aspiration. Even if one reaches his level of aspiration, he may be disappointed when he believes that he set his goals too low or selected the wrong goal. There are also the dissatisfied winners — those who believe that obstacles placed by others blocked their paths to the true success they firmly believed they were capable of manifesting. Prospero, in *The Tempest*, sighs,

This swift business
I must uneasy make, lest too light winning
Make the prize light.

Frequently, we may find severe phobic reactions to winning as posited by Mae Rudolph in a recent issue of *New York* magazine. For her,

> . . Success phobia is a sudden, profound revulsion against success itself, an inner shudder on achieving one's lifetime goals. It comes without warning, to those who never knew the facility of their ambition, never doubted that they would succeed: the true success ophobe strives constantly for perfection in his headlong flight to disaster; small successes don't count.

The athlete with a favorable self-concept tends to set goals high in relation to past performances. When he fails, however, he avoids the intropunitive explanation which athletes with low self-concepts employ. Obviously, success and failure can be judged either objectively or subjectively depending on the person's frame of reference. If the individual comes up to the expectation that the coach has for him, he will be judged a success even if he surpasses expectation. He is now called a real success. Yet, he may not be satisfied with his performance. He may even regard himself a failure in that he has fallen short of his own expectations. His achievement may not have measured up to the level of aspiration he had set for himself. But because immediate goals are likely to be more realistic than remote goals, the chances of failure of a subjective type are greater for remote goals than for immediate goals.

Winning and/or success can be viewed as a favorable termination of a venture or contest. To the mature person, success may simply mean working up to one's optimal capacity or realizing differing kinds of potentials. But a problem unique to the winning athlete is to think of success mainly in terms of what his high value means in his culture (money, possessions). These rewards serve as visible and valued status symbols and prestige that may accompany certain educational and occupational status. And though the meaning of success varies to some extent, every athlete comes to realize quickly (6, 7, 10) what is highly valued in the group with which he is identified. This, in turn, then influences his interpretation of success.

Movie Director Bernardo Bertolucci of *Last Tango in Paris* fame says of himself: "I am a living example of how success brings a sense of guilt. My superego is spending all of its time passing judgment on me. My superego is very authoritarian and repressive." The athlete asks, "Do I really dare? Do I deserve it? How can they really think I am that good?" Can the athlete deal with the imminent attainment of his desire? One might speculate that it might be more realistic to downgrade ambition and settle for a situation of less achievement but also less danger and more certainty of psychological survival. Consequently, one may suffer considerable conflict between deeper ideas of what constitutes success in life and the pressures exerted by society's current definition of success.

"Life is not so simple. You have got to make the dream happen," says John Amos, the black coach in *The World's Greatest Athlete*, in a serious moment during a series of concocted competitions in which he is the loser. Well, the dream does happen in this farce.

In a letter of the *New York Times* (February 1973), Paul Weiss wrote:

> . . . Success challenges one's future; it invites envy; it makes one seek external confirmations again and again . . . To make no effort is to leave the outcome to others or to circumstance; to try is to discover one's limits and therefore who one is.

Winning: Dignity and/or Authenticity

To effect some closing of the gap between winning and the ability to deal with the consequences as well as experience the authenticity of the experience, one would suggest abandoning not only a host of educational inhibitions but also certain social inhibitions. We must not pretend that society is unaware of the price of winning. But the political and alumni segments of society must collaborate in the process leading to change. We must not pretend that the social gains and social mobility derived stem merely from outside or societal pressures on the athlete. The result, of course, is a vision that is posed, patient, and studied — a portrait that would result in input from the total culture that is concerned with the mental health and post-winning adjustment and dignity of the winner. Can this be effected? The duty to preserve sports and winning is not absolute, but relative. When one considers the strain, pain and discomfort accompanying winning and the winner, is the cost of the procedure not extraordinary? One shudders when one considers the numbers of adult men in the coaching world whose year-to-year existence is literally in the hands of 16- and 17-year-old boys running across a muddy field; one can but question the underpinnings of the entire profession.

There is neither a right to win nor a right to lose. Neither of these rights comes from legislation, public enactments, prizes, school boards — no matter how wise and enthusiastic or circumspect they may be. They can never guarantee the joy that might be associated with winning nor rob the athlete of the joy of merely trying without the outside kudos. What one asks is to be able to play with dignity, which, after all, is not very different from the right to live with authenticity.

Is it not winning what we have all been taught that life is about? Is it not the end-all of business, sports, politics, even university life to be Number One? This basic premise and philosophy dominate American life — even the President so zealously embraces this philosophy that his publicly-endorsed heroes were pro-football coaches who are the most visible and blatant embodiments of it. But competition and winning are really poor models to guide behavior in areas like friendship, family and public life. The late Adlai Stevenson understood this well when he wrote, "Better to lose and educate, than to win and obfuscate."

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Personality and Athletic Achievement

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In efforts to improve our knowledge of sports psychology we are inevitably deeply involved with personality — that of the athlete and of the coach. From my many years of coaching and work in psychology I am fully persuaded that personality plays a highly significant role in athletic performance and achievement. The correlation is great, but it may be a complicated one. We can usually specify performance levels in sports, especially those such as track and swimming, which lend themselves to quantitative measurement.

On the psychological side we have infinitely more difficulty. Within the formal disciplines concerned with human behavior there is a great variety of theoretical systems of personality, often very different. They may be in conflict or simply place emphasis on different data. In any case, if we try to correlate athletic performance with personality, we are severely limited both by the reality or validity of the theoretical viewpoints and the reliabilities (and validities) of the various measurement systems that have been developed. Even a close relationship between athletic achievement and personality could be completely obscured by poor personality theories and tests.

I would like to discuss the general notion of applying formal psychological theory and findings to sports. Two considerations are important for our general orientation and a realistic look at what can be done. First, we will take a close look at what psychology can really offer the coach. Second, we will look at the motivations and expectations of the coach. Here, we have to oversimplify a bit because there are variations. Nevertheless, there do seem to be general trends or cores. These two considerations are, of course, intermingled.

The traditional training of the coach, and particularly his continuous training, is concerned with improving his mastery of athletic techniques. He reads journals on techniques and attends various coaching clinics. He listens to famous coaches and other experts lecture and then usually participates in question-answer sessions. There is still great fondness for and faith in clinics, and a coach will attend many of them during his career.

More and more the coach is trying to supplement his professional background by reaching out to various sciences. Physiology, for example, has influenced training methods. Interval training, now essential to good performance in running and swimming, emerged from physiological research. Coaches have been highly conscious of physics in examining and changing athletic techniques.

PSYCHOLOGY AND THE COACH

Now the interest seems to be moving toward psychology. There would appear to be a feeling that our knowledge of athletic skills and techniques has reached a saturation point, or at least one of diminishing returns. There is a growing belief that nearly all coaches are about to be equal from the standpoint of technical knowledge. Therefore, future competition, it is thought, will be on a psychological basis. In brief, since nearly everything else will be even, the winning coaches will be those who know and can apply psychology. Such a millenium has not arrived and probably will not. Yet, the basic idea isn't entirely bad. Coaches deal with human behavior, and the more they know about psychology, the better.

The application of any science cannot be stronger than its theoretical structure; such a limitation, of course, applies to psychology. Compared to other sciences, however, the limitation appears severe. Consider the enormous effects on our lives produced by the application of physics and chemistry. The effects are so powerful and obvious that we hardly need mention them, but, of course, you quickly think of the atomic age, the radio and television, the automobile, the jet plane. It would be difficult to think of a comparable list of effects produced by the application of psychology.

Mankind has always tried to study mankind. Much of the observation has been expressed in literary efforts, and still is. In formal psychology the basic attempt has been to make use of methodologies that have been successful in other sciences. The results of such attempts, it seems to me, have been generally frustrating and boring. Some psychologists may be unable to articulate or even recognize their own frustrations. Many have left the field of psychology without even knowing it, having become experts in statistics, animals, vision, etc. I use the word "boring" because of the great number of psychology journals which have bored us with thousands of sterile academic exercises.

All this is far from saying that psychology is not a good pursuit. It surely is. It just seems that when man studies man there are great difficulties. Exciting insights about mankind have emerged, but for the most part they have come from efforts that may be termed clinical rather than scientific. Neither the coach nor the athlete should have expectations about what psychology magically can contribute to them. For a time the contributions may seem quite modest. There will be few revelations.

There are practically no amateur physicists or chemists, but there are millions of amateur psychologists. The ability to function, and perhaps even to survive, depends upon a certain amount of ability to understand and predict human behavior. Some people seem to get very good at it, at least in a special field. The used car salesman seems to know his potential customers. The con man at the carnival appears to read the people he can take advantage of. It would be very difficult for the psychologist to advise these people. So it is with the athletic coach. He deals with athletes every day and is not naive about their behavior. In fact, many coaches are rather shrewd about sizing up personality. The contribution to the coach, in order to be useful, has to be above and beyond what he is already able to do on his own.

EXPECTATIONS OF THE COACH

Just as coaches vary in personality so they vary in their expectations from psychology. At one extreme are those who seek and expect nothing. As we move along the scale, there are coaches who feel that psychological help should be forthcoming only when the athlete is "nuts." Next, there are coaches who are hopeful and optimistic that psychology can offer findings that will improve coaching methods. It would be nice to think that they are the majority. At the end of the scale there are the coaches who expect miracles from psychology. Maybe they really don't. Such an unrealistic expectation could represent a hostility toward any interference by psychology.

What topics concern coaches the most? At Yale, I conducted a series of weekly seminars at which coaches met with specialists in human behavior including psychologists, psychiatrists and sociologists. The most oft-recurring topics, though not in this order, were aptitude, motivation, learning and achievement.

Aptitude

The coach would like to find talent, to discover the youngsters who are likely to do well. The problem of assessing aptitude in athletics is somewhat similar to that in other areas of behavior. Academic aptitude, which has been the subject of more than a half century of research, supplies a useful parallel. Binet's original efforts to assess intelligence in youngsters led to a proliferation of so-called intelligence tests. In some ways, especially with reference to theoretical research, the movement has been unfortunate. The typical test produces a score that is really a conglomerate. Items have been added or withdrawn on an empirical basis. The tests do have practical value in that they correlate with the ability to carry out various functions, principally schoolwork.

Accompanying the development of the intelligence tests have been efforts to specify the nature of intelligence. Accomplishment here has been modest. The conclusion seems to be that intelligence is made up of a general factor (G) along with specific factors (s's). The same situation may well be true of aptitude for sports. Observation suggests that there is such a thing as general athletic aptitude, but specific aptitudes are important. There have been great all-round athletes, but there are also many instances of outstanding athletes in one sport failing in another.

In athletics we have long talked about the "components" of aptitude. Favorite words have been "coordination," "balance," "strength" and "speed." The meanings of these words are still a bit hazy. An athlete can show coordination in one activity and not in another. He can exhibit balance in one event and fall down in another. Strength seems to be a fairly clear factor, but even weight lifting requires good technique. Speed appears to be a component susceptible to precise measurement. But even here there are difficulties in the way of finding a pure measure since technique and training play important roles. As you know, professional football coaches place great emphasis on a candidate's time for a 40-yard sprint.

A good battery of athletic aptitude tests could prove useful in unearthing unsuspected talent. More intensive efforts in this area probably merit attention. And yet, as a practical matter, it is useful to look again to the field of academic aptitude, where intensive and massive work has been carried out. Consider the college admissions people, the ogres who guard the gates. Their basic goals are, of course, to select candidates who can best do the academic work. Despite the enormous aptitude test movement, the best single predictor remains the secondary school record. It really amounts to — if you've done it before you're likely to do it again.

In dealing with the matter of prediction of athletic success, we can consider any sport. The quantitative ones such as track and swimming afford the easiest predictions, but let's take football. The high school coach has the least to go by and often fails to select or encourage talented youngsters, who then drift into other sports or away from all sports. The college coach recruits on the basis of high school playing records. An all-stater is a good bet to do well in college. In turn, the pros select or draft on the basis of record. An all-American is a good bet, but not a surefire one. In each instance the prediction system is not a certain one, but it's better than a system based on aptitude measures. Past performance remains the best predictor.

The system of projecting the past into the future predicts well, but why doesn't it predict better? I think largely because the "problem boxes" are not identical. College football is not quite the same as high school football. Nor is professional football quite like college football. Always there are differences that will make predictions uncertain. In addition, we are usually dealing with a developing personality. Personality changes that will influence playing performance are hard to measure. If we are to improve our ability to predict sports performance, the most promising area is the identification of personality factors that correlate with achievement.

Motivation

I am going to suggest some clues on motivation that are indicated by a realistic look at athletic behavior. The coach likes to think of motivation as a quantity, and each athlete possesses a certain amount of it. Of course, he can do even greater damage to the concept of motivation by regarding the area as all-or-none — that is, the athlete is either motivated or he is not.

A quick look at some complications in athletic motivation indicates that first, there is usually conflict. To do extremely well in an athletic event, an athlete may have to give up another source of satisfaction. It's understandable enough that there can be goals that conflict with athletic achievement. However, what is not so easily understood is that unconscious needs are often influential, even decisive. An athlete can have a strong need to achieve and also a strong need not to achieve. Such a notion may appear unrealistic to the coach, but most of his "problem" athletes probably fall into this category.

Second, the high school or college athlete is a young person undergoing the growth process. Particularly important to him is his emotional development. His aggression, which may have been largely physical in its earlier outlet, may shift to other areas of achievement. His early need to knock down somebody or defeat an opponent physically may shift to another form of achievement.

The third point is related to the second. Assume, as I think we can, that the original emotional base for achievement has been weakened. Will the athlete drop out? Not necessarily and very likely not right away. Because he has become so highly skilled, that great athletic performer has developed an ego resource that he may or may not be able to use for personal gain. In many cases the gain can be financial. A top professional athlete is well paid. At the college level, a fine performer can expect a "free ride" while looking ahead to a much greater income. The college player who is in a strictly amateur situation has a different motivation. Whether or not he persists will depend on nonmonetary satisfactions. If I had to guess, I would say it would be mostly a matter of prestige and recognition.

The topic of motivation should not be without some mention of peer influence. We see the tremendous power of peer influence in every area of behavior, and we can be sure that the area of sports motivation is no exception. Teams tend to be mini-societies and exert great pressure on their members. In addition, the larger society of the school or college has its influence. I suggest that an adequate understanding of sports psychology requires extensive research in the area of peer influence.

The climate in which a youngster enters sports is important — all kinds of climate including geographical, psychological, sociological and historical. We can talk about the youngster's attraction to sports in general and specifically. Cultures vary in the emphasis they put on sports participation and achievement. Some nations (e.g., Australia) are highly sports conscious; others are much less so. But it would certainly seem obvious enough that the culture in which a youngster grows up will influence his motivation for sports. As for the matter of which sport, climate of all kinds is vital. If you grow up in the Sahara it's unlikely you will be a skier or hockey player. If you grow up in the ghetto of a large American city, you will probably not be a cricketeer or polo player. These examples are, of course, extreme, but the suggestion is there for the athletic coach. To do well he has to foster a climate favorable to sports in general and to the sports that he coaches.

Learning

I must mention two feelings of trepidation. It upsets me to put human behavior into pigeonholes. This process is only a matter of organization and convenience because behavior is interdependent. Second, in this sort of rough survey I cannot do justice to any single topic. I can touch on some of them with the suggestion that exploration might further our knowledge of sports psychology. I have to be brief, and often, I fear, I am expressing my own prejudices. So it has to be in the vast field of learning.

Psychologists, perhaps unfortunately, have narrowed the field of learning to where it is a specialty entirely absorbing the entire efforts and energies of many professionals. My own feeling is that a narrow approach to learning will be futile and defeating. Perhaps we won't advance much until we take account of all of the disciplines concerned with behavior modification.

The area of learning has been an attractive one for psychologists over many generations. This area has evoked an overwhelming literature of research reports and theories. It's hard to know what athletic coaches and other educators have gotten out of it all. Nevertheless, the coach still seems to have hope. He knows that efficient and improved teaching and learning are critical to his task. He may have a skeptical eye about what the academicians may contribute, but he is still interested in any findings that can help him teach.

Most of you would, I think, agree that the two figures who have most influenced our views on learning have been Pavlov and Skinner. Both have had and still do have enormous impacts with their differing views on conditioning. Pavlov's findings were hailed as a solid base for a scientific approach to behavior. Mysticism was to be removed. We would now know about learning. Pavlovian views still have many adherents, but for my part I found this type of conditioning hard to establish in the laboratory and very quickly extinguished. It never struck me as a compelling base on which to build a theory of learning. As for Skinnerian conditioning, it really does work — in the laboratory! Animals do learn within the settings that Skinner devised. Watching the animals perform is almost a startling experience. As you know from his writings, Skinner proposes to extend his findings and views to modify our society. I, for one, do not think this kind of extrapolation is realistic or justified. However, Skinner's findings may very well have some application for the teaching of athletic skills. In the practical coaching situation they are difficult to apply.

As you may suspect, I am rather an admirer of Skinner and his ingenious approach. However, I feel uneasy about most experiments with laboratory animals. To restrict the number of mathematical variables, conditions are set up to restrict the options of the animal. Usually, the animal has no chance to reveal anything we might call "insight." I think such a process interferes with our ability to generalize.

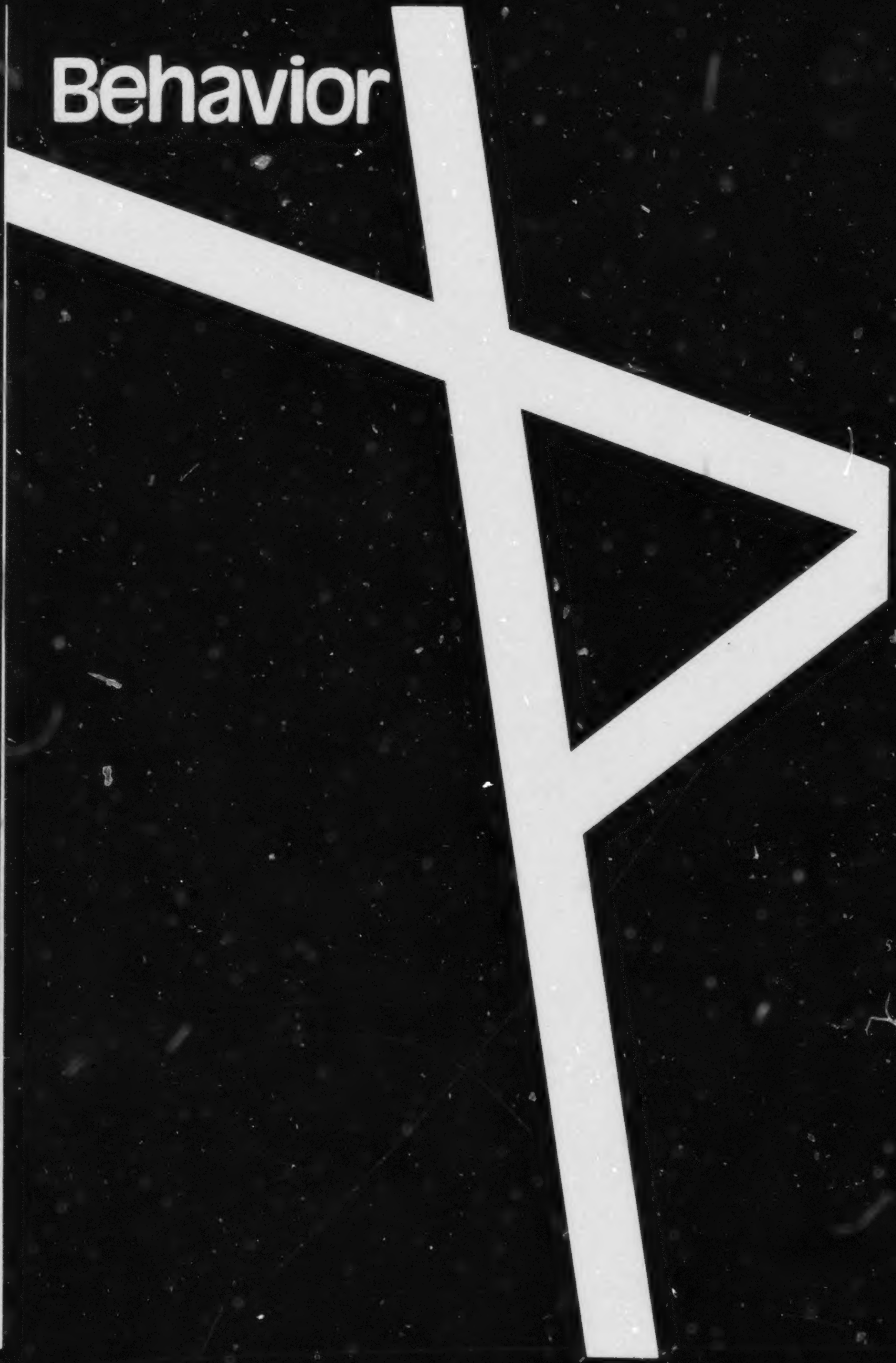
Achievement

For most practical purposes, achievement becomes the bottom line. It is all very well for the athlete to look good in practice, but the showdown comes in the game or the meet. In short, the athlete must perform well in competition or there is no real achievement. Quantitative sports like track and swimming give us a good chance to look at the pattern. Let's take a simple example. Suppose there are two high jumpers on the team. On a Wednesday in practice both can jump six feet. When they enter competition on Saturday, one does 6½ feet and the other does 5½ feet. The next week in practice they achieve the same height only to diverge again in competition. Coaches in the quantitative sports are highly aware of this pattern. There have even been instances of an athlete breaking a world record in practice and then failing to score in a minor meet.

In some sports the pattern is much more difficult to perceive. For example, the football player who barely misses the tackle or the pass completion looks as if he might make it next time. He doesn't. He can send the team down to defeat.

I suggest that the ability to achieve in athletics within the framework of physical ability depends on personality factors. Both the pattern of the ability to compete in athletics and the associated personality structure are stable factors. Thus, a promising area for exploration is indicated.

Behavior



Sport and Aggression

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Sports Psychology

What is sports psychology? First, psychology is frequently defined as the scientific study of human behavior. Within the broad field of psychology there are subfields or divisions, such as learning, perception, motivation or social psychology. Social psychology, for example, has the same definition as psychology, i.e., the scientific study of human behavior, but one thing is added. The new definition becomes the scientific study of human behavior as influenced by the presence, behavior and produce of other human beings. The same is true with other divisions of psychology. If the psychologist is a learning psychologist he studies human behavior as influenced by past practice and reinforcement history. If he is interested in motivation he studies behavior as it is modified by prior deprivations or arousals.

At least one psychologist, R.B. Zajonc, has pointed out that psychologists would be classified in different fields, not because they are studying different behavior but because they are studying different antecedents of that particular behavior (21). For example, a number of different psychologists might be interested in studying aggression. The learning psychologist might be studying how aggression is learned. The comparative psychologist would be studying aggression in different species of animals, and the social psychologist would be looking at aggression as influenced by certain social factors. If we adopt this approach to defining our area we would expect sports psychology to be defined as: the scientific study of human behavior as influenced by participation in or observation of sporting activities.

Thus my topic, sport and aggression, should be the study of aggression as influenced by observation of or participation in sporting events. While this seems like a reasonable definition (and describes reasonably well the work of the European sports psychologist), the people engaged in what we call sports psychology in the United States have typically adopted a much broader definition. The breadth of the field can be determined by examining the table of contents of some of the texts on sports psychology. A typical example is *Contemporary Readings in Sports Psychology* by William Morgan (11). Some of the chapter headings are "Engineering Psychology," "Measurement," "Motivation," "Motor Learning," "Perception," "Personality Dynamics" and "Social Psychology."

Thus, what passes for sports psychology in the United States is not truly sports psychology at all but psychology applied to sports. Typically, sports psychology in the United States includes motor learning, motor development and social psychology. Sports psychology as I defined it simply does not exist in the United States. There are some notable exceptions but in general, attempts to study psychology of sport have been limited and most studies rather poorly done. This is probably because of the difficulty in controlling the many variables that are acting and interacting to produce the observed behavior. I suspect that as we become more skilled in the use of unobtrusive measures and more clever in the design of field experiments, such as Sherif's classic "Robber's Cave Experiment" (15), we will begin to develop a true psychology of sport.

I must confess to you now that my subject, "Sport and Aggression," will have to be considered psychology as it applies to sport rather than the psychology of sport. While there are only a handful of studies actually investigating the influence of sport on aggressive behavior, there is a considerable body of research in related areas that seems to suggest possible implications and relationships between sport and aggression.

Applying Psychology to Sports

I don't want to suggest that studying psychology as it is applied to sports is an inappropriate activity. Indeed, I think it can be very meaningful. For example, several years ago I was doing a paper on attitude change when a television program featuring "Bear" Bryant came on. I was impressed by the fact that "Bear" Bryant, in dealings with his athletes, has applied almost all of the principles of attitude changes I was to discuss in my paper. I am reasonably sure he hadn't scoured the literature to find out what these principles were. I assume "Bear" Bryant is a very bright fellow who has been coaching for a number of years and has been able to pick up these psychological principles that apply to sport.

There are three ways a coach can develop successful coaching principles. First, you can say, "I'll watch Bear Bryant and do exactly as he does and says." As you might suspect, however, there are a few problems involved with this approach. I grew up in Oklahoma and I remember when Bud Wilkinson was the idol of all young coaches. They walked like Bud, talked like him and patted kids on the back as he did. Probably, however, they weren't picking up the critical things that really made Bud Wilkinson successful. A second approach is to spend 25 to 30 years determining what these principles of successful coaching are — but some of you may not want to wait that long. The third approach, and the one I would advocate, is to study psychology, then attempt to apply it to sports. Thus, you may be able to pick out the critical factors in successful performance and adapt them to your own style and personality rather than copy someone else.

AGGRESSIVE BEHAVIOR

It is rare to find a single cause for complex social behavior such as aggression. Rather, we should try to identify those variables or causes which can be shown to increase or decrease the probability of the behavior in question. I will discuss some factors that have been shown to influence aggressive behavior. It is hoped that this information may enable coaches to have more control over the aggressive behavior of both the players and spectators.

Concept of Reducing Aggression Through Sport

First, in dealing with the relationship between sport and aggression there appears to be a clear contradiction between what is commonly believed and what actually happens. Physical activity in general and competitive sports in particular have long been encouraged because of the supposed cathartic effect of these activities on aggressive behavior. Stokes, an English psychiatrist, stated "A very valuable feature, all will agree, is the catharsis of modern games," and later in the same article, "It is obvious that considerable aggression is used in hitting, kicking and flinging the ball. Indeed, here lies the principal opportunity for the catharsis of aggression" (16). Another English psychiatrist, Anthony Storr, in his book *Human Aggression*, wrote, "It is obvious that the encouragement of competition in all possible fields is likely to diminish the kind of hostility which leads to war rather than to increase it . . . rivalry between nations in sport can do nothing but good and it should be possible to encourage competition in other fields also" (17).

Coaches, administrators and parents have frequently advocated physical activity in sport because it allows kids to blow off steam and thus reduce the probability of aggressive behavior. In spite of this, everyday observation clearly indicates that this isn't always the case. Fights on the field or court, violence and destruction by spectators after witnessing athletic contests and extensive property damage have occurred so frequently that on occasions it has been necessary to eliminate competitive sports completely.

As for Storr's claim that competition will diminish international tension, we have only to look at the disaster of the last Olympic Games in Germany. There are several other examples. In 1969, a war between El Salvador and Honduras was apparently precipitated by a soccer match between the two countries. Again in 1969, when the Czech hockey team defeated the Russians for the World's Championship some of the Czech people rioted against the Russians stationed in their country thus bringing about increased international tension.

Paradoxically, then, activities that have been advocated because of their ability to reduce aggression seem at least on some occasions to elicit or stimulate aggression.

Definition of Aggression

Before proceeding, we should define aggression. Much of the conflict surrounding the area of aggression stems from the lack of a common definition. For the purpose of this paper, and for most psychologists doing research in the area, aggression is behavior with a goal to injure someone. I don't think it is necessary to go into some of the arguments involved with this definition but I would like to make two points. First, the behavior is goal-directed, that is, there is an actual intent to cause injury. Second, in physical education or athletics there is a tendency to equate aggressiveness with motivation. We talk about an aggressive base runner or an aggressive basketball guard. Now, both the base runner and the basketball player may plan to injure someone to gain an end but just because they are enthusiastic and vigorous in their behavior they would not be considered aggressive by this definition.

I would like to make one more distinction between instrumental aggression and hostile aggression. Instrumental aggression is behavior primarily oriented toward attaining a goal other than doing injury. For example, pilots and bombardiers in the Air Force are typically performing instrumental acts of aggression. They are actually killing people. Their primary goal, however, is winning the war or protecting the world, not injuring people. The instrumental act supposedly helps the aggressor reach his goal. Aggression in athletics is typically instrumental. The coach tells the player to knock the opponent down and run over him. While this sounds rather vicious, it is not intended to hurt the opponent but rather to win the game or score touchdowns.

While instrumental aggression is important, the focus of this paper will be on hostile aggression — or aggression with the primary goal of injuring someone. For convenience, I would like to separate the discussion into two sections: (1) the influence of viewing sports or games on the aggressive behavior of the spectator and (2) the influence of sports or games on the development of aggressive behavior in the participant.

Influence of Viewing Sports on Aggressive Behavior of Spectators

A number of studies using films of aggressive sports events have consistently shown that after viewing an aggressive event spectators typically behave more aggressively than those not viewing the aggressive event. I think one or two studies will be sufficient to give the flavor of the research.

Walters and Thomas had one group of subjects watch an adolescent knife fight scene from the movie *Rebel Without a Cause*. A control group watched a film sequence showing adolescents engaged in art work. After watching the movies, the group viewing the knife scene behaved more aggressively than the control group (20).

In an experiment by Hartmann, movies of an adolescent basketball game were used. One version showed two boys playing basketball while the second version showed a fight erupting between the boys during the game. When given a socially acceptable opportunity to administer electric shock to another person, those watching the fight scene inflicted more punishment than those who witnessed only the standard basketball movie (9).

Berkowitz has done a series of studies dealing with viewing aggression in sport. In one study he used two movies — *Champion*, starring Kirk Douglas, and a more neutral film. Typically, he compared two groups. In another study he had the control group watch a sailing race and in another he had them watch the race between Bannister and Landy that resulted in the first four-minute mile. While there are a number of factors involved, the basic results are consistent. Subjects behaved more aggressively after watching the fight scene than after viewing the less aggressive movie (2, 3, 4).

Observation of actual athletic contests has shown the same pattern. Goldstein and Arms interviewed spectators at the 1969 Army-Navy football game in Philadelphia. They found a significant increase in feelings of hostility from just before to immediately after the game. The results were consistent regardless of which team won (8). A similar study conducted at the Army-Temple gymnastic meet did not exhibit this increase in hostility.

The results from laboratory studies and field studies are consistent and suggest that, in general, viewing aggression has a tendency to increase the probability that the spectator will act aggressively themselves. I might add there are no studies showing decreases in aggression after watching such events.

While the results are fairly consistent, we know that aggression doesn't always result from viewing these sports. What, then, are some of the conditions that could account for the inhibition or elicitation of aggression?

It is possible that competition, by its very nature, leads to aggression. Competition is, almost by definition, a frustrating event — two individuals or groups attempting to reach the same goal which is available to only one. If the goal is important to the loser he should clearly be frustrated. While frustration does not inevitably lead to aggression, the chances of aggression being displayed are certainly enhanced. Sherif's "Robber's Cave Experiment" brought two groups of young children together in a series of frustrating competitive athletic contests. In the first series of studies, aggression became so severe between the two groups that the experiment had to be terminated (15).

Ryan compared the aggressive behavior of individuals who lost in a competitive contest with those who won. There was a significant difference between the two groups, with the losers expressing an increase in aggressive behavior while the winners displayed a significant reduction in aggression (13). This should not be interpreted as a catharsis. The subjects were punishing or inflicting injury on an individual whom they knew would not and could not retaliate. In a more realistic situation where the loser could retaliate against the winner it's probable that a spiral of aggression would result. At the very least competition increases the chances for aggression.

While winning and losing is one factor in determining how much aggression is expected, it apparently isn't a critical factor. In studying competition, Epstein and Taylor found no main effects for winning or losing. Their conclusion was that frustration produced by defeat led only to disappointment (6). The critical factor seemed to be the perceived intent of the aggressor. If the aggressive act is judged to be an accident it is usually forgiven without any indication that aggressive feelings were aroused. For example, we have seen cases where the person experiencing an injury actually tries to comfort the person who injured him, reassuring him that he was not at fault. On the other hand, should the identical injury be interpreted as resulting from an aggressive intent, that is, "that old boy is trying to get me," retaliation in some form or another normally can be expected.

In a sense, what Berkowitz has done in his studies of film violence is to manipulate the subject's perception of his victim. When Kirk Douglas (the individual who is being beaten) is portrayed as a "good guy," even angered subjects typically did not act aggressively. On the other hand, when Kirk Douglas is portrayed as a "bad guy" deserving of the beating, the subjects typically acted aggressively toward individuals associated with Kirk in one form or another (3). From these studies it would be hypothesized that in sports if the opponent is perceived as a good guy, little aggression should result, but if the opponent is perceived as being apt to act unfairly or aggressively, more aggression should be expected, both from the spectator and the participant. It is frequently within the coach's ability to control this perception. If the coach or newspaper consistently plays up the negative aspects of the opponent don't be surprised when violence erupts.

A study by Hastorf and Cantril illustrates how perception of intent determines whether aggression may be expected or not. Their study demonstrates that a football game can be interpreted in a number of ways depending on the audience's expectation or attitude. In viewing a Princeton-Dartmouth footabll game in which there was a great deal of violence and illegal play, spectators from one of the institutions described the game as being rough and fair while spectators associated with the other team described the game as being rough and dirty. The spectator's preconception of what his team was like and what the opponent was apt to be like influenced his perception of the outcome. The spectators from one team did not see as many illegal moves by their own team as did the spectators from the opposing team (10). Incidentally, if you have ever officiated you can appreciate this point. When an official makes a close call, one coach or group of fans thinks it is a correct call while the other coach and fans think "they have been had." This isn't necessarily that either team wants the official to cheat, it is simply that their perception of the event is distorted and this in turn can influence aggression.

Another important factor may be how excited or aroused the audience or athlete is. A number of studies have shown that when a person is aroused or excited, and there is some uncertainty as to what is causing this arousal, he will react to what he perceives as the origin of his arousal. Loud noises such as might be expected at an athletic contest might have that arousing effect. Geen and O'Neal had subjects watch the prize fight scene referred to earlier. Subjects exposed to a loud noise were more aggressive to fellow students than subjects who didn't hear the noise (7). As mentioned earlier, however, whether a person acts aggressively or not will depend on the interpretation he places on the arousal.

Berkowitz suggests that it is the combination of arousal and aggressive cues that increases the probability of open violence (3). A football game or prize fight need not be thought of as an aggressive event although it obviously would be easy to do so. An athlete who knocks down another athlete may simply be viewed as more powerful or more skilled. This interpretation should not provoke aggression. If the aroused spectator or contestant believes, however, that the opponent was trying to cause injury, then the event has aggressive connotations and could result in violence. As Berkowitz has pointed out, "However broad or subtle our own definition of aggression might be, it is the viewer's interpretation that really matters; the scene really isn't an aggressive stimulus unless the observer thinks of it as aggression, as the deliberate injury of others" (4).

Actually it would appear that much of the frustration-aggression literature can be applied to sports. For example, thwartings or frustrations seen as unexpected or arbitrary are more apt to lead to aggression than thwartings regarded as nonarbitrary or reasonable. If a team expects to lose and then does lose, one would expect less aggression from both spectators and participants than if a team expected to win and then lost. When a player expects to get blocked or hit, this action seems rational or reasonable. In most cases there would be little frustration involved. If, however, the participant was illegally held or hit unexpectedly from behind, this would be unreasonable or arbitrary and more aggression would be expected. Even illegal play should result in little aggression if the illegal actions are expected. For example, apparently holding is not uncommon in professional basketball. If the player knows he is going to be held, even though it is illegal, it isn't particularly frustrating. However, if the holding is unexpected, one of the participants might end up with a broken jaw. This has, in fact, happened.

I could go on with examples, but these illustrate the point. The evidence strongly suggests that the short-term effect of viewing or participating in sport tends to increase rather than decrease the probability of aggression. While sport has many values, one of them does not appear to be the reduction of aggression. However, the coach should understand the factors influencing aggression so he can control situations normally leading to aggression, and through his own actions and instructions to the players and through the information received by the newspapers, he can alter the perceptions and expectations of both the athlete and the spectator so aggression is less apt to occur.

Influence of Sports on Aggressive Behavior of Participants

We have alluded to factors that could temporarily change the behavior of the participant. What about the long-term effects of participating in athletics? Does participation make the athlete more aggressive or does it enable him to control his aggressive feelings more adequately? I know of no studies dealing specifically with sports and games but as in the previous area, a number of studies seem relevant. In general, these studies indicate that physically aggressive responses such as hitting or kicking may be learned under nonfrustrating situations, that is, through direct reinforcement during play, then transferred to interpersonal situations.

Patterson, Littman and Bricker observed a group of nursery schoolchildren over a period of nine months. They found that the nursery school setting was very influential in developing aggressive behavior. The development of the aggression seemed to depend on three factors:

1. The amount of interaction the child had with his peer. The more active the child was the greater the number of attacks against him and the greater the chance of his being reinforced for his aggressiveness.

2. The frequency with which the child counterattacked. The more frequently he counterattacked the less frequently he was attacked.

3. The proportion of occasions upon which his counterattack was successful in terminating the behavior of the aggressor.

The authors state that aggression is a high amplitude event that is learned by being reinforced. They report that not all children who have had advanced training in these assertive behaviors will be aggressive but all children who are aggressive will have had extensive training in a variety of assertive behaviors (12).

Davitz trained a group of nine-year-old children in either constructive or aggressive behavior. The constructive treatment consisted of drawing murals, working with others on completing jigsaw puzzles and so on. Cooperative activities were encouraged and praised while all aggressive behavior was discouraged. The aggressive training consisted of playing three games: "Stomp," "Scalp" and "Cover the Spot." Stomp consisted of two participants, each with a ping-pong ball. The ping-pong ball was placed at their feet and the only rules of the game were to smash the opponent's ball and protect your own. Scalp, also involving two players, each with a band around the upper arm, required the player to take his opponent's arm band while protecting his own. Finally, Cover the Spot has two participants and a cross mark on the floor. The game is played for a brief period of time. The person covering the spot at the end of the time was the winner.

The games were played for 10 minutes and repeated for seven training sessions. Throughout these sessions aggressive behavior was praised and encouraged by the experimenter. Finally, the children were frustrated and placed in a free play situation. The children who had been playing the competitive games behaved more aggressively in the free play situation than the children trained in the program emphasizing cooperation (5). Notice, frustration didn't necessarily lead to aggression which depended upon the type of training the child had received. It appears, however, that the frustration did energize the behavior that was dominant.

A related study by Walters and Brown reinforced children first for hitting a BoBo doll, then had them participate in the same physical contests used by Davitz. The children who had been trained to hit the BoBo doll were judged to be more aggressive in the contact games than those who had not had the training (19). The Davitz and Walters-Brown studies both show that aggressive responses learned in one area are transferred to another apparently unrelated area.

Bandura and Walters suggest that most of the responses used to hurt or injure others (for example, hitting or kicking) are probably learned for prosocial purposes and under nonfrustrating conditions (1). Since frustrations generally cause an increased arousal, the high amplitude responses once acquired may be called out in social interaction for the purpose of injuring others. Following this reasoning and the reasoning of Patterson it would be predicted that children or young adults who have participated in contact athletics would be more aggressive in social settings, particularly those with prior arousal, than children or young adults who had not participated in contact athletics. Typically the aggressive or high magnitude responses are those that have been reinforced in contact athletics. Therefore, the child who has participated in these athletic activities would be expected to have a history of positive reinforcement for aggressive responses. Indeed, as Walters says, "A father who trains his son to hit a punch bag hard is thus providing training that increases the probability of the child acting aggressively toward other children" (18).

A contrary point of view is presented by Scott. He argues that sports and games are ideal training grounds for the control of aggression. He points out that many sports and games have the effect of inducing situations which can easily lead to aggression, such as painful contact or intense competition. The athlete learns that hostile aggression or illegal actions are promptly punished. Thus through sports and games the participants are trained to control their aggressive impulses and to refrain from violence in these situations (14). Scott has no evidence for this position but the studies by Davitz cited earlier demonstrated that while reinforcement for aggressive behavior in play situations did lead to inappropriate aggression at a later date, it was quite possible in frustrating situations to train for behaviors other than aggression.

While I have no evidence other than observation of many athletes over a period of years it is my hypothesis that the athlete, being trained in these high amplitude responses, or in a sense as a fighter, sees himself as being able to control the environment. He is quite capable of successfully inflicting punishment if he so desires. Bubba Smith, for example, could wipe out one entire end of town in an evening if he chose. He doesn't, however. It may be that experience at controlling aggressive behavior gained through athletics keeps him from acting aggressively except in situations that he considers justifiable.

I have already mentioned that sports and games are frequently advocated because of their ability to reduce aggressive behavior. There is little evidence to substantiate this position. It seems that even a simple exercise such as riding a bicycle may have an energizing effect on aggressive behavior rather than the cathartic effect expected. Zillmann, Katcher and Milavsky reported that 2½ minutes of moderate exercise on a bicycle ergometer increased the intensity of punishment subjects administered to their peers (22).

Why then, has the notion of a catharsis through physical activity persisted so long? Sports, games and physical activity may serve to distract the participant from the source of frustration or they may simply delay the expression of aggression. The old idea of "counting to 10" is an effective device for reducing the expression of aggression. The longer the period of time between the insult or frustration and the aggressive response, the weaker the expressed aggression. Most athletes, when asked, will indicate they "feel better" after activity. Berkowitz has suggested the subjective mood may be important. In a study by this writer there was no indication of a reduction in aggression, but the subjects who were most aggressive said they "felt better." Remember, however, even though they "felt better" there was no reduction in their aggressive behavior.

In conclusion, let me summarize by saying that the available evidence suggests that sports and games appear to increase the probability of spectators and participants acting more aggressively and have little or no effect in reducing aggressive behavior in arousing situations. However, there has been almost no research dealing specifically with sports and aggression, and the related research from psychology should simply serve to prompt questions on the part of physical educators.

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Motivation and Arousal

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To understand why athletes behave and perform as they do, to appreciate their needs, wants and goals, and to utilize this knowledge in wholesome and effective leadership is a serious and imposing challenge for a coach. In this field there are no final answers and few universal generalizations — only changing intangibles. We are dealing with that complex, and yet fantastically capable, living organism, the human individual, an integrated composite of an infinite number of inherited characteristics and behavioral tendencies, innumerable environmental influences, and a psychological and spiritual component that defies complete understanding.

And yet the case is not hopeless. We do know something about motivation and arousal as they relate to sports. For many years, motivation has been the subject of intense study and research on the part of scholars and scientists, such as Sigmund Freud, Gordon Allport, William James, Abraham Maslow, Erich Fromm, Carl Rogers, B. F. Skinner and Victor Frankl. We know also that there are hundreds of coaches, athletic trainers and contemporary psychologists who have researched a good deal and thought deeply about this subject. Their insights must not be ignored nor their contributions minimized.

This, then, is a synthesis of fact, theory and experiences drawn from as authoritative sources as have been available to the author. The purpose of this presentation is to assist the coach and the teacher of psychology of sport to understand motivational and arousal phenomena as they relate to leadership in sport. Conclusions, hypotheses and opinions expressed in this paper are based on:

1. A fairly extensive review of the literature.
2. Experiences in more than 30 different classes in psychology of physical education taught by the author at three different institutions during the past 20 years.
3. More than 500 term papers by graduate students dealing with this or related topics.
4. More than 100 taped interviews with athletes and coaches concerning motivation for peak performances.
5. Almost 100 questionnaire responses from coaches.
6. Working with doctoral students whose dissertation topics were related to this theme.
7. The author's experience in coaching four major sports during 55 seasons.

Questions Needing Answers

There are questions which intrigue, plague or interest coaches, athletes and students of sports psychology. How does a coach deal with individuals or teams to assure that they are properly motivated for optimal performance? How can athletes be helped to achieve? Why do athletes and teams cease to improve? Why do certain coaching tactics succeed in one instance and fail in others? What happens when a team cracks? How do we influence players to behave as we would like them to?

What was the difference between the Mark Spitz of Mexico and the Mark Spitz of Munich? What was the force that drove Al Oerter to win the discus event in four successive Olympiads, even when suffering from some trauma in his side? What does the UCLA basketball team have besides great players that keeps them winning so consistently? What made the 4-minute mile and the 16-foot pole vault seem so unapproachable for many years and then suddenly become rather common marks for great performers? And of course, what causes a given basketball, football or hockey team to perform so wonderfully in one instance and then, only a few days later, play so miserably? Finally, why do the divers at Acapulco risk life and limb to perform their feats of daring and skill?

These and many other questions seem to defy definite answers. At least the solution does not seem to be found in anthropometric measurements, in tests of strength, in observing practice or even in watching competition in which there is no challenge. The answer is involved with nebulous, intangible things like spirit, feelings, ambitions, desires and inner resources. The response of individuals and teams to challenge the way they perform when they need to surpass their own previous marks, the emotional control they exhibit under great pressure and their response to stresses and stimuli of all kinds may give us a clue.

Definitions and Meanings

Motivation refers to the initiation, energizing, sustaining, inhibiting and halting of action. It has to do with the causation of behavior. The study of motivation attempts to determine why individuals act as they do.

Motives are of many kinds. Tensions, needs, drives, urges, wants, ambitions and instincts have been used to designate factors which influence or control behavior.

Motivation is the key to accomplishment. Coaches have long known that the optimum motivational "mind-set" is one of the most significant factors in determining the performance of an athlete or a team. Some feel it is the most important factor.

Arousal is concerned with excitement, tension and the physiological and psychological preparation of the organism for action. It is made up of emotion, attention, readiness, frustration and generally a mixture of several forms of excitement. The aroused organism is sensitive to stimuli, explosive in its movements and usually can concentrate on a task with greater intensity than if not aroused. Arousal is a more temporary phenomenon than motivation; it may be superimposed on a motivated state. Emotional arousal may constitute the motivation to action.

Anxiety is a general state of foreboding or apprehension in which an individual is aware that some event might or will occur but is uncertain of the outcome or whether it will result in pain or pleasure. Most players and coaches are somewhat anxious before an important athletic contest. Anxiety may result from frustration or fear of consequences.

Frustration results when one's drive to a goal is blocked, when one's movements or actions are hindered, or when one's freedom is threatened. The barrier which prevents an individual from attaining his goal may be another person, an object or his own lack of capacity or skill. Complete frustration generally leads to anger, aggression, dependency, apathy and finally fixation at the point of frustration. A high scoring forward, tightly guarded by a great defensive man, or a skillful quarterback prevented from passing by a powerful and hard charging defensive line are in situations where tempers flare and hostility often occurs.

A *peak performance* is usually the culmination of long, arduous hours of practice, rigid self-discipline, willing subjugation of self for the good of the team, and obedience to the edicts of the coach and trainer as well as the inexorable laws of nature. Peak performances, however, are not always those of world class athletes or Olympic champions. Less physically endowed individuals can have peak performances. In addition, peak performances are not always a matter of winning or losing. A person who develops his total being, in all dimensions, to the limits of his capacities, and who puts everything together to achieve his best possible performance also will have attained the goal of a peak performance.

Abraham Maslow characterizes a peak experience as one in which the individual is more integrated (less fighting against himself), is more harmoniously organized, feels himself to be at the peak of his power, is aware of himself as being more creative and spontaneous, and sees himself as being fully responsible and "in charge." Such a person senses that he is using all his capacities to the fullest and functions with effortlessness and ease (4:275-277).

Examples of peak performances might be:

1. Ard Schenk who fell in the 500-meter race at Sapporo, but came back to win three gold medals (something only five men in the Winter Olympics had previously done).

2. Bob Beaman in Mexico, with his fantastic leap of 29 feet, 2½ inches. It exceeded all expectations and predicted possibilities.

3. Emil Zatopek who won three Olympic championships and several world records after he was 30 years old.

4. And, of course, the fabulous performance of Mark Spitz in Munich.

Homeostasis and Tension Reduction

Motivation theorists have long emphasized the human organism's tendency to maintain a constant internal environment. When body temperatures get too high or too low, when the blood pressure rises or falls beyond normal limits, when the acid-base balance is upset, or when there is present in the blood an excess of carbon dioxide, tension ensues and physiological mechanisms are set in motion to reduce it.

Motives which are especially designed to reduce such tensions are sometimes classified as *primary motives* and in other instances termed *physiological motives*. Examples are hunger, thirst, sexual desire and sleep. Alleviation of tensions in such states and the satisfying of the resultant drives are powerful motivating factors.

Anger, fear and other emotions also are often classified as physiological motives. The classic "fight or flee" phenomenon, which results from deep emotion, triggers the typical physiological mechanisms including shunting of blood to the skeletal muscles, secretion of hormones by the ductless glands, deepening of respiration, release of sugar from the liver and increase in arterial blood pressure.

These physiological phenomena are part of the preparation of the organism for action. A state of tension exists and the drive to relieve it is evident. When there is no opportunity for action the tension must subside gradually. Psychosomatic disturbances such as gastric ulcers, skin allergies and asthma have been known to result. Insomnia, nervousness, headaches, nightmares and upset stomach are other symptoms of chronic unreduced tension. School teachers and coaches have been identified by psychiatrists as among those whose roles do not permit an open and free expression of their frustrated feelings and thus are quite subject to such psychosomatic disorders.

Hunger is experienced as a drive directed toward obtaining food. When certain nutritional elements are absent, equilibrium is upset and both autonomic and voluntary mechanisms are set in motion in alleviate the tensions and uncomfortable sensations felt because of this lack.

Thirst, or need for water, is felt as a dryness of the lips and mouth but also a vague feeling that water is needed. Regulation of the amount of water involves the pituitary gland, the hypothalamus and many other parts of the organism.

The *sex drive* is stimulated in many ways and relief from the tensions can be obtained by the sex act and also by deep involvement in physical activity or other absorbing interests.

It has been conjectured that the sex drive is related to competitiveness. Observation of male animals battling to the death during mating season, or roosters fighting to retain their place in the pecking order has been likened to the need many humans feel to prove that they are superior to others of the species. Some behavior can no doubt be attributed to this phenomenon.

Hierarchy of Needs

There are those who attempt to base their entire theory of motivation on the phenomenon of homeostasis, or tension reduction. Recently, however, it has been more usual to place motives on a continuum ranging from the primitive, biological needs which are necessary to support the organic processes to the altruistic and self-fulfilling needs which will help build a better society.

Maslow's hierarchy of needs serves as a good example. They are listed as 1) survival needs, 2) security needs, 3) belonging needs, 4) esteem needs and 5) self-actualization needs. This arrangement can be quite meaningful to those of us in physical education and coaching. We know that before higher needs will interest normal, healthy individuals, immediate drives for food and water must be satisfied. People are not interested in sports or games when they are hungry and thirsty.

Security needs are of many kinds. A young child needs the security of his mother. A 12-year-old boy needs to feel secure with his coach and peers if he is to play freely and spontaneously. A secure athlete is less worried about making mistakes than one who has not yet won his spurs.

Assuming survival needs and security needs have been satisfied, all individuals feel a *need for belonging*. Most people feel a need to be accepted for what they are. To be a member of the "in-group," to be invited to parties, to be one of the gang, are needs that we have all experienced at one time or another. Coaches and teachers are often aware that boys and girls, during certain periods of their life, are more concerned with how their peers react to their behavior than with winning the approval of their superiors.

Esteem needs are of several kinds. Esteem of those younger than oneself, esteem of peers, esteem of superiors and self-esteem, all are important at certain times and under certain circumstances. Coaches must understand this and not be too critical when an athlete behaves in a way which seems to be directed at peer acceptance instead of the coach's approval. It may be important, even for the sake of better performance, that he feel accepted by the team.

Self-esteem is related to self-concept and is the highest of the esteem needs. When a person has reached the point where he has formulated his philosophy of life and his actions are congruent with his beliefs he will be moving closer to becoming a whole, integrated individual. When he behaves as he does because he feels it is the right way to behave, and not just to please someone else, he will be reaching maturity.

Self actualization, or the actualization of one's full potentialities, is the highest in Maslow's hierarchy. Certainly this is in keeping with the philosophy of most good coaches. To become what one is capable of becoming and to realize one's potential are goals worth striving for. A word of caution, however, may be in order. There are those coaches who cannot accept the idea that some of their athletes also may have other ambitions. Some athletes intend to become great engineers, others are interested in music, while many wish to be successful in business, law, medicine or industry. To expect everyone who is out for a school team to put his athletic endeavors ahead of all other school programs is not realistic or right. And yet an athlete who is not highly motivated in terms of his performance and contribution to a team will not make his maximum contribution. Judgment and empathetic handling of such situations are important.

Higher Levels of Motivation

In fairly recent years the psychological literature has placed increasing emphasis on what I have chosen to call "higher levels of motivation." These include the concept of self-actualization just discussed, the idea of the "central motive state" as described by Rado (5:18-20), "propriate striving" as presented by Allport (1:26-32), and the notions of "self-transcendence" and "logotherapy" as Frankl explains them (2).

The higher levels of motivation go beyond tension reduction, avoidance of pain, seeking of pleasure and the concept of homeostasis. They are concerned with self-fulfillment, the wish to become what one is capable of becoming, the concentration on the completion of a task, the discovery of meaning in life, and the giving of oneself completely to a cause. They have to do with the desire for excellence, the ambition to move ever upward, the idea of ego-enhancement, and the constant striving to grow and improve. At the highest level, that of self-transcendence, such motivations carry one beyond selfish impulses, and, in the words of Frankl, "into that sphere of human existence in which man chooses what he will do and what he will be in the midst of an objective world of meanings and values" (2:51).

The *central motive state* is characterized by an intense concentration on a goal. In such a state the individual is organized and integrated by a single outstanding interest. His entire organism is mobilized to accomplish a given task. When motivated by such a state the individual is prepared to react with the proper motor and cognitive responses. The central motive state in sport, then, would be one in which an individual gave top priority to his performance in a particular contest and approached it with single-minded concentration.

The central motive state can be short-term or long-term although it usually has a relatively lasting influence on behavior. It would seem that every coach would strive to develop a central motive state in each athlete which would last at least for the duration of a season.

Propriate striving resists equilibrium. It strives to maintain the tension that will furnish the drive to attain a goal that is long-term. An overall, long-term commitment is maintained. Allport uses the example of Roald Amundsen and his dominant passion to become a polar explorer. Seemingly insurmountable obstacles were overcome.

temptations to reduce tensions were great, but propriate striving persisted. In Allport's words:

> Propriate striving distinguishes itself from other forms of motivation in that, however beset by conflicts, it makes for unification of personality . . . . The possession of long-range goals, regarded as central to one's personal existence, distinguishes the human being from the animal, the adult from the child, and in many cases the healthy child from the sick. (1:30-31)

Certainly every coach can use this as part of his motivational philosophy. It has been my observation that the great coaches I have known are very much concerned about the long-range mental, physical and emotional development of their charges.

The eminent philosopher-psychotherapist, Victor Frankl, has developed his own particular brand of psychotherapy which he calls "logotherapy." Influenced greatly by his experiences in a German concentration camp and the observation that those who were sustained by a sense of "meaning" in their lives were much better able to withstand the hardships they were forced to endure, he developed his philosophy and therapeutic technique of logotherapy. Essentially he finds that, both as a preventive and a therapeutic measure, the search for, and the discovery of, meaning is the key to good mental health. Frankl concludes his chapter, "Beyond Self-Actualization and Self-Expression," with these words:

> It appears, in conclusion, that those theories of man which are based upon the reduction of his tension as in homeostasis theory, or the fulfillment of the greatest number of imminent possibilities as in self-actualization, when weighed, are found wanting. It is the contention of the author that an adequate view of man can be formulated when it goes beyond homeostasis, beyond self-actualization . . . .

Frankl then goes on to lead his readers into a discussion of logotherapy and existence (9:50-51).

For me the theories of "higher levels of motivation" described above make sense. More important than incentive and rewards, more important than "psyching up" for a particular event, more important than emotional appeal and pre-game oratory, is a deep and abiding sense of purpose. The athlete who believes that what he is doing is worthy of his best efforts and worth the sacrifice of some transient pleasures has a basis for his behavior and actions upon which powerful motivations can be built.

This is not to say that other motivational devices are unimportant or ineffectual. It is to say that long-term mental preparation has real significance and that the development of the right kind of personality and character in an athlete is fundamental to the "winning mind."

Self-concept, Expectations and Level of Aspiration

How one believes others perceive him and how he perceives himself play an important role in controlling behavior. If one feels he is regarded by his peers as a leader he will try to fill that role. If an athlete believes he is not competent to perform in the league in which he finds himself he is almost certain to fail. If there are among the spectators, persons who have great faith in an athlete's ability, he will try his best to fulfill their expectations.

Coaches and other leaders must be continually aware of the effect of praise and disparagement. Criticism and ridicule which convey a complete lack of confidence in an athlete's ability can be his undoing. Judicious praise may bolster an athlete's confidence and morale to where he performs better than he himself believed possible. To be told that he is a great "clutchhitter," a strong finisher or a great competitor can do much to develop such traits in an athlete. To be disparagingly called "yellow," a "choke," or "lazy" can often encourage such attitudes and cause him to see himself in that light.

A person's opinion of himself affects his behavior. The way he feels others perceive him influences his relations with them and ultimately his personality. His reaction to others, his competitive spirit, his achievements and failures, his level of aspiration and his realization of his potential are all related to his concept of self.

The *level of aspiration* is the goal which one sets for himself. It may be the height which a pole vaulter strives to achieve. It may also be the grade in physics for which he is striving. Winning a starting berth on a soccer team, hitting a certain number of home runs in a season, holding a high-scoring forward to a few points, or running a certain distance in a given amount of time, all are levels of aspiration.

Success tends to raise one's level of aspiration, failure tends to lower it. Encouragement may cause a person to shoot for higher goals and discouragement for lower ones.

Expectations of parents, girlfriends, boyfriends, coaches and oneself will influence what one believes he can do and what he sets as his goal. The confidence of the performer in those whose expectations he recognizes will determine the influence those persons have on his level of aspiration.

It may be seen then that while self-concept, expectations and level of aspiration are not exactly the same, they are interrelated. Expectations do influence one's concept of self and his level of aspiration. One's goals and the efforts to achieve them will be affected by a person's self-confidence and opinion of himself. The expectations of coaches and other people whom a player trusts will do much to raise or lower his own estimate of what he can do.

It is apparent that all of these three notions, self-concept, level of aspiration and expectations, are part of motivation. One's opinion of oneself affects his behavior and the level to which he aspires. The expectations of others not only influence his opinion of himself but may motivate him to struggle more valiantly to achieve.

To be the most effective in motivating athletes, the factors just mentioned must be realistic, and criticisms, opinions and expectations must be sincere. Expectations and levels of aspiration which are too high and cause repeated failure can result in frustration. Those which are too low to be challenging will not be developmental.

I was impressed by the simple analysis which Fred Holloway, long-time soccer coach at the State University of New York at Cortland, presented in an interview. He aaswered a question about level of aspiration in this way:

1. Every athlete needs a goal or goals.
2. The goals must be worthy goals.
3. The goals should be achievable.
4. The goals shall be high goals which require dedication and effort.
5. The achievement of the goals should result in a better self.
6. Reaching the goals should bring one as close as possible to the achievement of his potentialities.

Step-by-step progress and improvement, the mastering of one challenge after the other, a realistic appraisal of abilities and capacities, a vision of what a person can become, and a determination to move steadily onward toward the realization of one's potential — these are elements of the truly motivated state.

Social Determinants of Behavior

Man does not live by himself but as a part of a group. His behavior is therefore influenced by social determinants as well as individual phenomena. Human beings have needs for companionship, empathy and sharing which cannot be satisfied without involving other people. Man likes to play and receives many pleasures and satisfactions from participating in games.

I have frequently asked my 10 children and many of their playmates the questions, "Why are you playing touch football?" (or another game) and, if they indicate that they like physical education, "Why do you like gym?" Two responses far outnumber all others. The first is "because it's fun" and the second "because I like to be with the guys" or "other girls," as the case may be. Fun and the desire to play interesting games with their friends — these are the overriding motives of youngsters for participating in sports. We coaches sometimes forget this. There are many athletes who do not become as intensely involved in the competitive aspects of the game as do the coaches. Some of them perform better because of it; they are more relaxed.

I have tried to glean from my conversations with athletes what some of their greatest satisfactions have been. A surprising number identified the friendships formed, the spirit of camaraderie, and the sharing of triumphs, defeats and exciting experiences with their teammates. Anyone who has participated in "old home week," in athletic "remember when" sessions or similar events which go on far into the night will attest to the human need for and enjoyment of such experiences.

Other social incentives also influence the behavior and actions of those participating in sport. It is important to be liked by one's peers, to be an accepted member of a team or group, to be a member of the "inner circle." People need to love and to be loved. To be able to communicate with others and not feel the chill and emptiness of social isolation is a human need. There are those who are motivated to participate in sport and go out for teams just to fulfill such needs.

Regardless of analogies used in the study of the human organism, man is more than a "naked ape," more than a computer in human form. He possesses the quality of ***humanness*** and as such has a need for interaction with others of his kind. He is motivated by his need to show and receive affection, to converse with other people, to compete and cooperate, to exhibit his prowess and/or creativity, to be recognized for his achievements. These, too, are motives which need to be understood and appreciated.

Arousal for Peak Performance

We come now to the matter of arousal. If a person has achieved the central motive state as far as his particular sport is concerned, is it still necessary to arouse him further so that he may achieve a peak performance? The answer is "yes and no." This is an individual matter and a situational matter. The degree of arousal necessary for optimum performance varies with the individual, with the particular sport, with the position on the team, and with many other circumstances surrounding the particular event or contest.

The goal is rather clear. Each individual should be aroused to the degree that normally elicits his best performance. Each team must be aroused to the need of a cohesive, unified, unselfish effort. Each coach needs to be personally aroused to the stage where he will be controlled, clear thinking, decisive and inspirational. All should sense the urgency of the task, the excitement of the moment and the challenge of the endeavor.

There is plenty of evidence to indicate that in each individual there are hidden resources which can be called out in time of emergency, and that there are energies and capacities that can be mobilized when the organism is optimally stimulated. The literature contains a number of instances where high emotional arousal has made incredible feats possible.

The essential points of the diagram of the inverted "U-curve" and the principles of the Yerkes-Dodson law are:

1. Without some arousal there is no action. Some arousal is necessary for any performance.
2. Up to a certain point, an increase in excitement improves performance.
3. The point at which performance is best is called the optimal arousal level.
4. Performances requiring great strength, explosiveness, endurance and courage are usually enhanced by higher levels of emotional arousal.
5. When arousal levels go beyond the optimal arousal level, performance begins to deteriorate and disorganization sets in.
6. Clear thinking, precise movements, fine coordinations and peripheral vision are hindered by arousal levels which are too high.
7. There may be a relationship between individual personality traits and the optimum level of arousal for a given individual.
8. Each athlete, each sport, each team and each situation will need to be considered in deciding how much arousal is desirable.
9. Each individual should learn how he can best prepare himself mentally for a contest and try to reach his optimal level of arousal.

Many emotional states combine to provide the excitement and stimulation which mobilize the human resources for action. Anxiety, aggressiveness, hostility, fear, anger, apprehension, affection, loyalty, confidence, joy, exhilaration, buoyancy, determination, challenge and atonement are words which have to do with arousal or, as some would call it, "psyching up for a contest." To touch the strings of human emotion so as to bring out just the right degree of excitement which will not only mobilize the organism for action but also sustain the athlete throughout the contest — this is the challenge.

The mental state or condition which is desirable in many instances would include the following: a) confidence that victory is possible, b) respect for the opponent's capability, c) belief in the worthwhileness of an all-out effort, d) a wee bit of anxiety with regard to the outcome, e) a feeling of buoyancy or "joy of combat," f) a determination to make this a peak performance, g) a feeling of "all for one and one for all," h) a determination to put the effort of the team (if it is a team sport) above selfish interests.

In many instances, optimum arousal levels will be achieved by careful mental preparation along the way. If there is a week between games and considerable preparation is involved with showing movies of the opponents and/or discussing their tactics and personnel, the players may be aroused without any emotional appeal immediately before the game. In cases where the sport consists of individual performances such as in gymnastics, track and field or swimming, the probability is that the athlete feels the weight of his responsibility so keenly that there is no need for further arousal. In fact, the opposite may well be the case. It may be in such instances that a quiet, steadying influence is needed, and an expression of confidence and support is the ingredient.

In a sport like wrestling, special arousal tactics are seldom necessary. As one wrestler said, "Merely watching the previous matches was enough to psych me up."

In a sport like baseball or basketball where fine manipulative skills are involved there may be danger of too much arousal. Too much excitement can cause fumbling, poor timing and less clearheaded thinking.

There have been instances, however, where a few strong, decisive words by a spirited, articulate leader have inspired a team or individual to the extent that the person or team has gone on to perform better than anyone had a right to expect. Sometimes it is the note of confidence and strength, sometimes it is a challenge to which the team or individual reacts, sometimes it is in the expectations expressed, and sometimes I feel it is in the "ring of the voice," the sincerity of the message, the expression of faith. Whatever the reason, it is wonderful to watch a team or individual who has put everything together produce a truly "peak performance."

Spirit of the Champion

What motivates the champion? I believe the following illustrations are illustrative.

Robert Giegengach, the Olympic track and field coach in 1964, said:

> The great champion over the years is the man who wants to win and must win all the time. There is nothing ungentlemanly about this. Some of the mildest people who walk the face of the earth are some of the most vicious when it comes to competition. A complete dissatisfaction with being in a subsidiary position — this must be the motivation of the great champion competitively. Others are satisfied with making the team, being the second man, with being on the squad, with having improved their condition and similar objectives. The great champion feels a tremendous need to be first. (3:86)

The need to achieve is a motive that has been identified by many psychologists and is very real in top performers.

Athletic contests seem so often to consist of surges. Momentum is an important motivating factor. To keep one's own momentum going and to stop the opponent's momentum as soon as possible is the name of the game in competitive sports.

Ernie Arlett, the very successful Northeastern crew coach, responded to a question about momentum as follows:

> Absolutely. That is one of the beauties of sport — when suddenly something comes alive and the crew brings out the best in themselves — it's a great thing. It does happen and that's what we're always striving for. In crew this can sometimes be accomplished by the little fellow that sits on the stern of the boat and steers, the coxswain. He may say, "You're moving up," and providing it's true it spurs the crew to greater efforts — they come alive — they come afire — and its beautiful to watch! This I think is part of what a coach is striving for. There is nothing finer than when a crew looks like they are losing — and then suddenly comes alive and goes ahead and wins. This is one of the beauties of sport. (3:88)

Tom Woodishick, the great fullback for the Philadelphia Eagles, was asked a few years ago to state the most important motivating factor in professional football. Without any hesitation he said, "the pride the individual has in himself as a professional to go out and do his job to the very best of his ability." Pride in performance is indeed the mark of a great "pro," and characteristic of the truly motivated person.

And Bob Richards, in his book, *The Heart of a Champion,* wrote about inspiration in these words:

> I can't describe it or define it, but I'd like to give you one facet of what I think it means when a person is inspired. *It's when they see themselves not as they are but*

> *as they can become.* It's when they see themselves, not in terms of their weaknesses and shortcomings, their failures and inadequacies, but in terms of what they can be, when they begin to believe they can be what their vision tells them — that's when they're inspired. When they no longer see their weaknesses, but their greatnesses, by emphasizing their strengths they go on to do things they never dreamed of. (6:19-20)

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The Stimulus-Addicts, a Psychosocial Paradox

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The basic intent of this article is to offer a psychosocial interpretation to account for what appears to be the extremely paradoxical behavior associated with risk-taking athletes. It is this author's conclusion that empirical data and available research support the theory that the fundamental motivation is a function of a highly integrated personality structure which is "stimulus-addiction" prone.

Danger in Sports

One of the great paradoxes for the typical spectator is the concept of individuals with a great zest for life placing themselves in situations where the probability of terminating life is greatly increased. There has been a vast amount of psychological, social and physiological theory formulation to account for the complex motivation and character formation of those who subject themselves to physical risks. In the absence of reliable data, it is difficult to quantify in precise statistical terms the actual gradient of danger within sports. When considering the risk factor in sports car race driving, we can attest to the fact that as of this date 37 percent of those described in our 1968 study are either dead or so seriously injured that they will never drive competitively again (5).

Direct communication with the U.S. Parachute Association indicated that there was a near perfect relationship between jumping competitively for a two-year period and the occurrence of injury. A variety of other sports which incorporate varying degrees of danger such as mountaineering, gliding, scuba-diving, spelunking and aerobatics have been the subjects of study. It has been anticipated that a sound, viable, theoretical, psychosocial model can be formulated to understand such paradoxical human motivation.

The majority of nonparticipants tend to interpret risk-taking behavior in the light of their own personal need system and thereby project a wide range of negative images. These vary from labeling the behavior as foolhardy, reckless, daredevil and in the extreme, suicidal. They continually ask,"What could motivate a human to jump out of a plane 12,000 feet in the air and fall 8,000 feet before opening his chute while aiming at an eight-inch disc target upon the ground?" "What could motivate a human to climb an unconquered mountain, dangling at the end of a rope 10,000 feet above the earth?" "What in the world could prompt a human to strap himself into an incendiary bomb which he will accelerate to over 180 miles per hour often for hours on end?" "What about those who strap themselves into high powered midget planes specifically designed for aerobatic competition?" These competitors challenge every law of gravity and space while exhibiting what must be the most exquisite forms of motor coordination and intelligence to be found in the sports world.

A number of other high risk sports such as whitewater canoeing, snowmobiling and skiing seem to permit a greater ease of positive identification and therefore, are less prone to negative projections. In the absence of reliable data upon which to base physical risk comparisons, no hierarchical ordering of the degree of danger within sports is possible at this time. With respect to the ultimate risk within sports, however, race drivers have no peer.

RISK-TAKING BEHAVIOR

Even those who refuse to apply a negative projection to risk-taking behavior tend to accept these competitors with some reservations because they feel that they must be very different in important ways. Generally they are seen as thrill-seekers who are frivolous by nature and therefore make no significant contribution to society. The final judgment would be that they should direct their energies toward something more worthy of the risks involved.

Dorothy Harris has published an excellent review of the various theoretical risk-taking viewpoints which have evolved from psychological, social or physiological speculation (4). She reviewed Klausner's theory that only through play and sport can one achieve full enjoyment and the toleration of risks and stresses (7). Klausner states that the human has a need to create artificial obstacles which are then contested or sought in the face of fear, while at the same time the activity must take a form that is accepted by society. Risk-taking behavior also may be seen as the product of an unexciting society whereby the individual can encounter stresses that are self imposed and through this form of expression temporarily escape from an overprotecting society. Related also is the need for man to quest for excitement which contains a high element of pleasure though it is accompanied by varying degrees of anxiety and fear. The reinforcing positive reward that follows from the conquest of fear or the escape from pain acts to condition the individual to seek habitually this form of emotional release.

The theory with the deepest historical roots interprets the motivation as the "pursuit of disequilibrium" or the "experiencing of vertigo" by which the individual seeks momentarily to destroy the stability of perception and suffer a degree of panic while still remaining in control of his faculties. Stimulus struggle, quest for excitement, ordeal of fun and the tempting of survival have each been offered as causal interpretations. Bernard categorizes risk behavior into *dys-stress* which is unpleasant, damaging or painful and *eustress* which is associated with excitement, adventure and thrilling experiences. Eustress is associated with fun and enhances vital sensations to which people can form a positive emotional link (1).

The most systematic examination of the stress-seeking phenomenon is a series of studies of skydivers conducted by Fenz and Epstein (3). These investigators tied psychological and physiological variables together in their examination of the approach-avoidance conflict associated with skydiving. They found that the number of jump experiences contributed significantly to the containment of anxiety, and that regulatory control of the stressful aspects of jumping was mediated by unconscious denial or emotional displacement. In general, the more positive interpretations of stress motivation have been limited only to those competitors who experience the exhilaration and euphoric feeling that follow the risk situation.

Negative Basis for Risk-taking Behavior

In spite of the absence of reliable data there has been a plethora of psychological and psychiatric theory generally positing only a negative or pathological basis for such behavior. The following represents only the most frequently mentioned syndromes:

1. Counter-phobic reactions whereby the individual continually exposes himself to those conditions or situations which at an unconscious level provoke within him the greatest psychological or physical fears.

2. Fear displacement — the fear-provoking object or situation is denied by redirecting one's behavior towards less threatening objects or situations.

3. The dangerous behavior as a manifestation of unconscious feelings of inadequacy which are disguised or blocked from awareness by acting at a conscious level in some super-masculine overt form.

4. The acting out behavior of the psychopathic personality whereby the dangerous activity is a reflection of basically immature, shallow contact with reality.

5. Various explanations including the "proof of omnipotence," "quest for superiority," "proof of sexual adequacy" and the "establishment of masculinity."

6. The most frequently reported causal factor, the "unconscious death wish." (The constant flirting with danger is interpreted as offering temporary relief from this constantly nagging unconscious impulse.)

It is possible to attest to the validity of all the foregoing psychiatrically-defined syndromes. Each has received support based upon clinical experience at every level of sport from Pop Warner football through Olympic and professional sports over the past two decades. The major criticism would be leveled at any one or any interaction of these syndromes as representing a general cause of dangerous behavior. Overcompensatory athletic achievement and counter-phobic reactions are facts of athletic life, particularly at the highest competitive athletic levels.

If a negative or pathological motivational model for athletic stress-seeking behavior represents the most valid hypothesis for this form of human expression it should follow that objective measures of mental health would support this conclusion. Also, there should be some hierarchical ordering of mental health from those sports with a high death rate to those with the lowest probability of injury.

This complex, seemingly paradoxical behavior, has been examined in the light of data collected on the basis of psychological inventories which were designed to measure selected personality traits. The descriptive analysis of the character formation of high risk athletes reported here is supported by a series of investigations of competitors who have been identified as national or international class with respect to achievement (6, 8, 9). These investigations included the use of the Minnesota Multiphasic Personality Inventory, the Cattell 16PF, the Edwards Personal Preference Schedule and the Jackson Research Inventory. Other instruments were designed to measure more specific sports attitudes toward competition which were combined with personal interviews. The effort to study the highest level of competition such as best national driver, parachutist, aerobatics pilot, All Pro Football or Olympic competitor was necessary to control the possible contaminating effect that occurs in investigations where actual level of talent is not accounted for in precise terms.

When we limit our discussion to individuals at this competitive level it is readily apparent that sex differences no longer appear. Men and women who achieve in sport at this level shared an almost identical personality structure. We can speak with considerable confidence about the human tendency to engage in risk-taking behavior and therefore, reject those theories that attribute the behavior specifically to some form of masculinity device.

Intelligence of Risk Takers

The negative inference that those individuals who continually place their lives on the line must somehow be less than bright is absolutely refuted. The higher the risk factor the greater the probability that the individual is above average in abstract ability, typically falling within the upper 15 percent of the normal distribution curve. Delk has reported similar findings in that his less select skydivers averaged in the superior range of 122 IQ (2). Whiting's investigation of mountaineers also reported this trend toward superior intelligence.

Based upon need for achievement our sports sample of stress-seeking individuals truly separate themselves from the average person. Goal-setting attitudes, desire for success, ambition, the need to be recognized as superior and exceptional, and the need to be on top place them in the upper 20 to 25 percent of the population. It can be assumed that these highly select competitors have been exposed to cultural models that demand a success orientation to life.

Independence of Risk Takers

This desire to be on top is complimented by a number of personality traits which distinguish them very significantly from the average citizen. They are extremely autonomous persons who definitely "march to their own beat" and have very slight regard for others' advice or counsel. Within these sports samples, autonomy ranges from All Pros averaging lowest, to female race drivers who set the standard for independence. Complementing these trends was their great will to dominate. They seek leadership roles and see themselves as persons in whom others invest their trust and dependencies. They accept it as a casual fact of life that others fall in line behind them when there is a need for someone to handle the decision-making process. Because they find it easy to express aggression and feel it is important for success they are free to utilize this emotional force when appropriate to accomplish their ends. These persons rarely back down from a personal confrontation in which they have made an ego involvement.

A very high need for change and variety in their lives would lead to the prediction that they become bored easily and have little patience with the ordinary or routine. The male and female competitors both expressed an extraordinarily high heterosexual interest pattern. To date no attempt has been made to establish the degree to which this is related to action or simply a predisposition to have an open interest in things sexual.

Personality Traits

The personality dimensions self-assertion, tough-mindedness, self-sufficiency and forthrightness are reliably higher traits for these athletes. The interaction of these traits would strongly suggest that they have an abundance of energy, make their own decisions based upon a direct evaluation of reality and brook no interference from others. Their hardnosed, unemotional view of the world leaves them little room for sentimentality or an idiosyncratic preoccupation with how reality should appear. Although most traits that distinguish them from the general population strongly suggest an extroverted personality, they remain cool and reserved. The single exception to this generalization would be that of pro football players who were significantly more warmhearted and outgoing. All sports subjects were basically nonaffiliative and were much less interested in being members of groups or participating in organizations. Their club or organization meetings would be worth some type of sociologic study; can you imagine an organization made up of 99 chiefs and one Indian?

All samples were consistently below average in a cluster of traits that suggest an emotional detachment from others. In terms of the traits deferentialness, abasement, nurturance, succorance and casualness, we find an interaction of attitudes that leads to the prediction of a very low involvement with other people. Basically they appear to be loners. It would be anticipated that they have a low regard for the authority or opinion of others and an extreme avoidance of interpretations that are not their own. They rarely experience guilt feelings and fail to see how such an emotional reaction supports positive action. The dramatic reduction in dependency needs strongly supports the clinical impression that they would rarely form relationships in which the other person is used as an emotional crutch. They place low value upon taking care of others or spending time offering emotional support or counsel. Social workers they are not. It would be anticipated that they function most comfortably in relationships which are transitory in nature, somewhat emotionally flat and require only the most superficial commitment on their part. This interaction of personality tendencies suggests that they neither seek nor encourage deep emotional ties with others.

One of the consequences of the analysis of this highly restricted range of talent has been contradictory findings with reference to past investigations. Past research based upon samples of coaches and university athletes would have led to the prediction that these samples would be high in need for order, psychological endurance, superego development, conscientiousness and conformity to traditional morality, and low in need for change. Instead we found a decided trend toward disorganization, increased needs for nonconformity and rebellion against routine, and an essential need for varied and different experiences. Social rebellion and a rather broad rejection of traditional standards would suggest that these competitors are highly selective with respect to the social customs they choose to honor.

Mental Health

The question of mental or emotional health is so central to every psychological model that has been hypothesized to account for risk-taking behavior that an extended review of the MMPI findings seems warranted. This inventory includes 3 scales that measure test-taking attitudes, 12 that measure various forms of pathology and 1 scale that measures social introversion-extroversion. In terms of test-taking attitudes the aerobatic pilots, race drivers and parachutists proved to be extremely open nondefensive subjects. Football professional players were slightly more defensive but still well within the normal range; it may be assumed, therefore, that the inventory findings are reliable representations of their attitudes.

These competitors differed most markedly from the general population on the scales psychopathic deviate, hypomania and masculinity-femininity. The clinical picture would be that they are nonconforming both in behavior and interest patterns. The elevated hypomania score indicates that they are enthusiastic, have highly varied interest patterns, high energy levels and would tend to convert personal anxiety into some form of overt action. They were significantly less inclined to report bodily complaints, poor physical health or to be preoccupied with bodily functions. They were slightly more aware of personal anxiety though the clinical picture would be that of a nonworrier who is basically relaxed. Their slight elevation on the schizoid scale suggests that they are cool, detached and turned within themselves. There would also be an inclination toward abstract interest patterns such as science or philosophy. There was no evidence from the hypochrondrical scale that they would channel their anxiety into bodily symptoms such as headaches, dizziness, paralysis, paresthesia or other such forms of unconscious denial. Their low scores on the depression scale confirmed once again a cheerful, optimistic life style and an absence of severe mood swings. Low scores on the psychasthenia scale describe them as being free from nagging responsibilities while being easygoing and relaxed. The scale which measures social introversion seemed to suggest a difference between team and individual sportsmen, with those participating in sports with the highest risk inclining more toward social introversion.

Summarizing the MMPI findings based upon factorial studies of the interaction of the scales served to deepen the clinical picture of these competitors and offer substantial support for both EPPS and 16PF findings. As a group these athletes exhibit a very low level of anxiety and maintain a high degree of emotional control. There is an absence of body concern or bodily complaints. They possess high ego strength which describes them as adaptable, resourceful, possessing good physiological stability. They have a strong sense of reality, permissive orality, and above all vitality. They seem devoid of dependency needs and have a reduced need to seek support from others. They are dependable and willing to take the consequences of their own behavior. There is an inclination to greater personal, social and ethnic acceptance of others. They have elevated status needs which suggests they are socially poised, secure, positive and frank with regard to moral questions. They tend to be sophisticated and realistic, although somewhat impatient with people who are naive, moralistic or opinionated.

Rejection of Pathological Basis

Based upon the psychometric level of enquiry it is possible to reject with confidence the psychiatric model of a pathological basis for the motivation to seek stressful sports outlets. There is absolutely no support for the hypothesis that the higher the probability of death or serious injury the greater will be the evidence for emotional instability or neuroticism. To the contrary, though not statistically significant, there was a decided trend toward greater emotional stability in the race drivers and parachutists. These select competitors rank at the highest level for abstract ability, creativeness, independence, tough poise and leadership potential while being extremely low in measures of anxiety.

The general view that this paradoxical behavior flows from neurotic needs presupposes that the risk-taking behavior is seen as a flight from an unconscious threat or fear. This assumption seems untenable. Depth interviews of selected competitors such as Ken Miles who was interviewed shortly before his untimely death while testing a car at 180+ miles per hour should have forewarned us with regard to this fallacy. Ken, rated among the finest sports car racers who ever lived, was quite open and willing to discuss in detail the nature of danger, death and even serious injury. He discussed these dangers immediately before the start of an important race. Every national driver and parachutist we interviewed explored these possibilities willingly and openly. The world champion female parachutist Suzy Neuman was more than willing to describe in detail the times she experienced chute failures — failures occuring while falling from 14,000 feet at a speed of approximately 120 miles per hour. Certainly there are subjects within these hundreds of individuals whose basic motives could be labeled counterphobic, unconscious death wish or some other unhealthy form of sublimation or compensation. It would be this researcher's conclusion that they represent a most significant sample of those who excel in their sport. We found pro football players to have a much greater awareness of the potential dangers in the world around them. They differed very significantly in this regard from Air Force Academy and Stanford University varsity players. The Air Force cadet football athlete set the standard for a lack of awareness of danger. The professional football player lives with the constant reality that physical injury can destroy his career and terminate his financial security. Parachutists and professional race drivers actually see serious injury and, in many cases, the death of comrades. Aerobatic pilots rarely experience death or injury but are totally cognizant that danger and risk are part of their reality.

SUMMARY AND CONCLUSION

The foregoing review of over 250 individuals who seek to compete in athletic activities with varying degrees of physical risks indicates that the paradoxical behavior is a manifestation of a rather amazingly positive personality organization. The passive, noncompetitive researcher or theorist must attribute risk taking to pathological needs. A person asked Sir Edmund Hillary about his motives for climbing Mount Everest, and Hillary replied that if you had to ask the question you will never understand why.

These subjects represented a highly educated sample of individuals in that most had some university education. Many had advanced degrees and were members of professions. Actuarial data support the conclusion that as a group they have achieved greater financial and social success than the average citizen. The high incidence of extroversion, ambition, dominance, tough-mindedness, self-confidence, low tension, and aggression blended with emotional control represents an example of a well-integrated personality. (The easy boredom, intolerance of routine and casual observance of tradition suggest a strong need for stimulation.) Their enthusiastic, exhibitionistic personality structure, gregarious life style and great need for independence are evidence for a vital emotional need for action.

The data and depth interviews lead this investigator to conclude that the basic motive for risk-taking behavior of these high level competitors is that they are "stimulus addictive." This term seems more to the point than reducers of sensory input, stimulus hungry, counterphobic pleasure seekers, or even stress seekers. Stimulus addiction implies the derived need to expose oneself repeatedly to situations where the balance among fear, danger and anxiety remain within the boundaries of personal control. The cyclical need to extend oneself to the absolute physical, emotional and even intellectual limits is the quest to escape from bland tensionless feeling states associated with everyday living. Even the surgeon reaches a point in his career when the challenge of placing his skill on the line subsides, as does the challenge for the attorney in his court presentation. Even for the aerobatic pilot whose daily existence is commanding a 747 via an electronic master panel, there must remain a tremendous need for escape from the drabness of predictability. Basically they are humans with a much greater need for stimulation and excitement who finding that flirting with fate and living on the brink of their existence produce a special form of ecstasy that cannot be provided by any other form of behavior.

I have found from my interviews with men and women who are the best in the world in their particular field of endeavor that they experience little joy in life when their true ability remains uncontested. They much prefer to place their considerable talent on the line and face the ultimate truth as to their ability. Their internal measure as to what constitutes success takes precedence over the judgment of others.

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Special Interests

Psychology of Football Coaching

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During my first year of teaching math I became involved with football — liked it — and decided to find out something about the coaching business (I was not a physical education major). I have now been coaching 22 years and find it even more challenging than when I first started.

In my coaching, what I do psychologically I have arrived at by trial and error. There are no shortcuts and, I believe to be effective, you have to know a great deal about yourself. In the process of learning about yourself, the development of a philosophy is all-important and confidence in that philosophy is even more important. To illustrate this point I relate to you a short story involving Bear Bryant. Bear was hunting ducks with a companion. Some ducks flew overhead; Bear shot and the ducks just kept flying. When Bear's companion indicated that he missed, Bear replied, "Those so and so ducks don't even know they are dead." You must have complete confidence and control.

When I first began to coach I fancied myself as a technician-tactician rather than a psychologist. With the passage of time I have made a complete turnabout. I now concern myself more with how to handle people. In the beginning I labeled all performances right or wrong, all good or all bad. Now, I reinforce those parts of a technique which I think are desirable and say little or nothing about those which are undesirable. This kind of coaching (teaching) requires a disciplined patience and is perhaps my most important contribution to the psychology of coaching at Ithaca High School.

A coach must develop pride in his overall program. Every school has had an era in which a particular team did well. The team sets as its goal the improvement of every record in its school. Athletes love to be challenged.

The high school coach should know each of his players on a personal basis. Throughout the year the coach should maintain contact with his players and take an interest in their activities. This kind of individual attention has unlimited possibilities. During individual conferences, the coach and player should discuss plans for the coming year, including team outlook and individual aspirations.

Perhaps the best teaching device is for the coach to remember that he is a teacher (I make no distinction between coaching and teaching). To me this is a mandate to "push" individuals to do the best they possibly can. The technique I find most effective in "pushing" people is by example. The coach's public life is an open book and it should be the kind young people aspire to.

At Ithaca High School, aside from whatever else we do, our practice procedure on a daily basis considers the individual from two points of view — (1) one of our coaches must work on a one-to-one basis with each player on the squad and (2) coaches treat everyone the same with no distinction made between the "star" and the "scrub." Finally, we try to have something about our squad which is unique — something we do that no other team in our league does. This may be a part of our uniform, pregame practice procedure, hair style, etc. People love to be distinctive.

These psychological considerations are not in order of importance nor are they the only ones we use. They are simply some of the techniques we employ and feel are effective.

Theory and Application of Sports Psychology to Wrestling

Ed Michael
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If physical capabilities exist, the degree of success a team will enjoy is largely dependent on how well it is motivated. Motivation is a key factor in my wrestling program at the University of Buffalo.

To implement any type of motivational procedure, a coach must first attempt to control the makeup of his team. I feel there are basically three kinds of athletes: winners, shoulder shruggers and losers. Winners exhibit positive qualities while losers are characterized by negative attitudes. The largest group within a team is usually the shoulder shruggers — those who can become either winners or losers. If a team is to be productive, the winners must demonstrate the dominant personalities, positively influencing shoulder shruggers and pressuring losers into either withdrawing from the team or joining the winners. The coach must exercise particular care during the recruitment process to influence the composition of his team, regardless of the level of participation.

I feel that all athletes participate for a specific reason, evolving from the need to satisfy emotional needs. Wrestling is too demanding an activity for one to participate in merely for the benefits of physical fitness. Wrestling helps the athlete fulfill several needs: to be liked, to have friends, to be successful, to make worthwhile accomplishments, to be recognized. Effective motivation is related directly to the fulfillment of these and other emotional needs.

The satisfaction of emotional needs is the reward in a successful motivation-oriented program, as the inability to satisfy these needs becomes an insidious form of punishment.

Essentially, this is an application of the reward-punishment technique that coaches have used for many years, with a new "wrapping." Specifically, these rewards take the form of opportunities to belong to an important group, form friendships, achieve success and accept recognition. Punishment is merely the absence of the opportunity to receive these rewards.

Many traditions have been established in the wrestling program at the University of Buffalo to aid in insuring highly motivated athletes. I host a picnic for the team members and their friends at my home in the fall, a dinner between semesters and a postseason party when letters and individual awards are presented. Each wrestler is given a shirt and cap which identifies him as a team member. A Hall of Fame has been established in the wrestling room comprised of team composite pictures and wall hangings depicting individual and team honors, awards and championships. Complete team and individual statistics are kept throughout the season and displayed in a prominent area in the gymnasium.

Attractive uniforms and good facilities for practice and meets are a vital part of the motivational program. Particular effort is made to acquire good publicity for the wrestling program through maintaining sound relationships with the news media and making a press guide readily available. All newspaper clippings are displayed on a bulletin board in an important area in the gymnasium.

I make certain that each wrestler, regardless of his position on the team, has an opportunity to compete as a team member in a preseason and Christmas tournament. Whenever the opportunity arises, I make it a point to praise individual team members. Winning is a very important factor in developing highly motivated athletes; therefore, I try, as much as possible, to insure that we enjoy success as a team.

Many of the people who have attacked athletics of late have done so in response to some of the motivational techniques just described. It is my belief that this hostility has arisen because we, in athletics, tend to make nonparticipants feel inferior, train individuals for a competitive society that seems to reward only conformity, and heap great rewards on individuals who possess seemingly meaningless skills, such as putting a ball through a hoop and running with a football. Obviously, if I did not feel that athletics were worthwhile, I would not be a part of the profession. Athletics provide an opportunity to satisfy specific emotional needs through participation, furnish a livelihood for many and afford spectator sharing whereby emotional needs are often vicariously fulfilled.

Psychology of Cross-Country Coaching

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Two years ago we were fortunate enough to win the Eastern States Cross-Country Championship — the first time a team in Western New York accomplished this. But all the way home, 400 miles by car, all the boys talked about Billy Kingston who won the junior varsity race. This was the first time in his life he had won anything. He is the boy who was known as being 50 yards behind during the first 30 yards because he never thought he could finish a race. That day, though, Billy won. I don't know how because when he passed me with a half mile to go he was in fourth spot and at least 300 yards behind. When I got to the finish line I said to my other boy who was up there, "Kenny, where did you finish?" He said, "I was in fourth." I said, "Well, then, Billy beat you; he was third." He said, "No, coach, he won the race." I think one of the reasons we won the Eastern State Championship is because that race was run first and the other guys figured "Well, we certainly can't let Billy show us up," and they went out and did one heck of a job for us.

Everything I probably know is by trial and error, by talking to these boys, the boys who go away to college and come back and tell me what they have learned, something I can use. All my coaching is based on practical experience. I haven't read too much, but I am a very good listener; I listen to what everybody tells me then decide what I am going to do.

Dedication and Work

Dedication and hard work also lead to success. This group of boys went down to the Penn relays as sophomores. They watched one high school win a big plaque and four gold wristwatches and they said, "Coach, we want the wristwatches." So I said, "You know what you have to do. It is a lot of hard work." With a lot of hard work and dedication these boys ran together all summer and in September when we got together they said, "Coach, we have three objectives. We are going to win the Eastern States Cross-Country Championship, we are going to bring back the gold wristwatches from Penn and we are going to see if we can't make it to the Golden West.' Well, we won the Eastern State, we went down to Penn and won the distance medley relay. They got the four gold wristwatches and then the next day they decided they would try to run the two-mile relay; the week before they finished fifth in New York. They came back and won four more gold watches. It was quite a weekend for us.

These boys were dedicated; they practiced seven days a week. Every day they were out there — winter snows, sleet, no matter what the weather. Hard work and dedication paid off.

Some of these boys were talented but the one who anchored that relay team was a boy named Gary Duszynski. As a sophomore he ran a 2½ mile cross-country course in 26.12 minutes as his best time. I used to tell him that he was the most important boy on this team because when he finished we could all go home because we knew that nobody was left on the course. He told me later, after he graduated, "You know, coach, after that season I decided that I wanted to go to college. I couldn't afford to go to college and I knew my parents couldn't and I knew this because I was the oldest of 10. So I decided the only thing I could do was run." So he ran twice a day from Thanksgiving Day of his sophomore year of high school and I know I saw Gary at two o'clock in the morning running down Millersport Highway. I would say, "You know we have practice at 8:00," and he would say, "Yes, but I just came home from the dance and decided I needed a little workout."

He was the boy who anchored that relay. We had a fantastic day; we missed the national high school record by .6 of a second and Gary anchored it for us. He had a four-yard lead, he ran his first quarter in 60 seconds flat and a boy from New Jersey passed him. You never saw such a look on a kid's face in your life. He went after the kid and on the third lap he broke him and walked in pretty easily. He ran out of the stadium and didn't return for 25 minutes. The first thing he did was pull the baton out of his shirt and said, "Here, coach, I thought maybe you might want this." I still have that baton at home. I said, "Gary, you must have wanted that wristwatch awfully bad because I didn't think you were going to get that guy." He said, "No, coach, I just wanted that meal you promised us." The next day, we put him in the two-mile relay. Since he had never run a half mile in his life, we decided to lead him off and he ran 1.57. We won pretty easily when you have 1.52 and 1.53 on the end; it is not too tough when you have the lead.

Training

I would like to tell you how we train for cross-country because people think I am crazy. I don't think we train the same for two years in a row but we have gone to a system and other teams just shake their heads in disbelief when I tell them. We run to all of our meets, and we run home from all of our meets because the meets are approximately five miles from school and if they give us a bus to go to the meet they won't let us go away. We believe that we learn by running against the good clubs. This past season we ran in New York City twice, in Philadelphia, in Binghamton, in Scranton, in Syracuse, and in Rochester, and our total bill was $312.

We come with our sleeping bags to New York, we sleep at Sacred Heart in Yonkers. They put us in classrooms. One year we slept in a church in pews. Two weeks ago at the Penn relays we slept in a jail because it was the only place we could find that would take us, but I think the kids really like this. This past season when we went to New York, two boys came over and said to me, "You know coach, we miss one thing down here." I asked what that was. They said, "We miss laying here on these mats in this classroom just shooting the breeze with our buddies." So they came over and spent the night with our team because they missed it. While the accommodations aren't the best, the boys get to know each other, they are together and they learn to know what each other can do.

As far as training goes, we start on September 1, which is the New York State law, and we practice seven days a week until the end of the season. If we get home at two o'clock Saturday or Sunday morning from our New York trip, we are back out practicing at 8 a.m. This is what we decide we want to do and this is what we do. For the first month of the season we do nothing but long slow distance; we put in 15-18 miles a day and we run together because we feel you win all the big meets by running that way. We make the good boys run at the rear of the pack and keep the young kids up front. Even though the younger ones say they can't run that far, they run and start shooting the breeze with their buddy and before long they have run 7, 8, 10 miles without realizing it. The kids have all kinds of problems with running around in circles on a track, so we change the practice site every day

Since I teach at a different school, I always meet them where we practice. They run to practice and they run back from practice. We hope the change of scenery makes it better for them. The only speed work we do until October 1 is at the meets. When we run the meet, that is their speed work; they can run their 2½ miles all out if they want, whatever way they can get there. The only exceptions to the long slow distance is that we aim every year for the Eastern States Championship in New York, the All-Catholic meet here, and then the Western New York meet, which comes at the end of October and the beginning of November. We know in New York, with all those teams on the line, that you have to get out and get out hard, so every day when we start practice the first half mile we run all out. We try to run the first half mile under 2.30 and from there we keep right on running with our long slow distance. We want to be able to run when we are tired and we try to condition ourselves for these meets. We have seen too many teams run their first half mile hard and then die. So, what we try to do is get out and establish a position so we can be in contention throughout the race.

In October we start doing speed work two days a week and our long distance three days a week. On Sundays we go out and run the hill, and when it comes to the hills, if we know the course, we know what we are going to see. If we see that we are going to run a hilly course we will go down and run the ski slopes at Glenwood or Kissing Bridge. We feel that if we can run the ski slopes, no slopes or hills on any cross-country courses are going to fake us out. We go to a lot of these places and the home town boys tell us that this hill is suicide hill or parachute hill because if you fall off you'll need a parachute. Our kids just look at them and ask where the hill is. We tell them this is flat up in our country, but they just can't believe it is so.

Coaching Techniques

We work psychology in reverse. I always say to my kids, "You can listen to all the stories the fellows on the other teams tell you — what they are doing, how fast they are running, how high they are jumping and so on, but you keep your mouth shut and if they ask you what you are doing, tell them you don't know, you will have to ask your coach because you don't know anything he doesn't tell you." Two years ago I was on crutches at the opening track meet of the season, and it was snowing. A newspaper photographer came over to me as I was making out my lineup. The triple jump was going on, so the photographer went down there and I crawled down on my crutches. I was standing at the end of the runway; Tommy, one of our boys, jumped well and the fellow took his picture.

On the way back I saw the photographer stop the boy, who said, "I don't know, you will have to ask my coach." I asked what had happened. Tommy replied, "Coach, that guy down there with the camera, I think he is a spy. He asked me my name and I told him I didn't know, he would have to ask my coach. I didn't want to do anything to get you mad at me." So, at least I have to say one thing for them, they listen.

I think that if you are going to coach, you should be yourself. Instead of copying someone else, you should pick a system of coaching which you believe in. Now I said we do long, slow distance during cross-country season for the first month. I know coaches who run intervals training and are just as successful, so you pick the system that you believe in, the system that you can sell to your boys. If you are not happy with it, if you don't believe in it, nobody else will believe in it either. There is no best system. You decide which is best for you and stick by it.

Also, I think you should be very honest with your boys. If you don't know something, tell them so. They have asked me questions and I don't have a clue to what they are talking about. They read these books and study physics and so on, and I don't have an idea of what they are talking about and I'll tell them. But I do try to find out for them, or I say, "Let's sit down and talk about it." I use the same approach when the kids have troubles. I don't think anybody can do anything if something is bothering him. At the beginning of the year we tell the boys that if they have any problems, anything they can't talk to anybody else about, that they should feel free to come to our office, sit down and talk it over and that nothing ever leaves the office. We will straighten out our problems in there and if we decide it is best for him not to run anymore, nobody will know why unless he tells them because I never will. I think this is the way it should be.

Also, I think you have to treat each boy as an individual. No two of them are put together the same. You find that you learn an awful lot by talking to them, traveling with them and so on. Some you have to pat on the back, some you have to kick in the proper place, some you can humor, some you turn completely off if you yell and scream. I think whatever you do, you should always encourage a boy, always find something good to say for him because he never forgets it. Two years ago, again, we had a boy at the track meet break the Western New York record in the half mile. The same day we had a little kid who had run for us for four years and for the first time in his life he won a race. He won the junior varsity half mile in about 2.44 seconds and they carried him off the track. The boy who broke the record, they let go. They figured he had won enough, but with this kid it was an accomplishment.

We worry — our seniors worry about the freshmen boys; in fact, the seniors worry about everybody. The secret of our track program is that the seniors have the responsibility. I tack the work up on the board before I go home. They get out of school at 2:30, I get to practice at 3:30, so they have half their workout done before I get there and it is the job of the seniors to see that the track workout is done and they do a very good job. They like the responsibility; they think it is something they have inherited and each year they try to do a bigger and better job. One of our boys, Billy O'Brian, is probably the best distance runner in Western New York. He hasn't run a race yet this year because he has been hurt; but because of what he did with our distance runners during cross-country and this track season, the success we will have in the next two years belongs to him. I believe that if not next year, two years from now we will go back to the Penn Relays and come back with the trophies. I am sure of it because of Billy's fantastic job with these young kids. We have sophomores and freshmen running times that we just wouldn't have believed two years ago.

Here is a poem we keep on our bulletin board. I think it is part of what our effort is all about.

If you think you are beaten you are;
If you think you dare not you don't
If you'd like to win but you think you can't
It's almost a cinch that you won't

If you think you'll lose you've lost
For out in the world you'll find
Success begins with a fellow's will . . .
It's all in the state of mind.

Full many a race is lost
Ere even a step is run
And many a coward fails
Ere even his work's begun.
Think big and your deeds will grow
Think small and you'll find behind.
Think that you can and you will . . .
It's all in the state of mind.

If you think you're outclassed you are;
You've got to think high to rise;
You've got to be sure of yourself
If you're ever to win the prize.

Life's battles don't always go
To the stronger and faster man.
But sooner or later the man who wins
Is the fellow who thinks he can.

Psychological Aspects of Hockey Coaching

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McGill University
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In spite of the tremendous importance of ice hockey in Canada (and increasingly in America), an amazingly small amount of research has been done on this sport, particularly on its social science aspects. What work, if any, is being done in other parts of the world is not reaching us so that one must do some real searching when preparing to speak on the psychological aspects of hockey coaching.

To some extent the specifics may change from one skill or age level to another, but the coach's functions remain the same. The coach is seen as a person whose job is to know himself, his game, his players and how best to relate each to the other for the greatest benefit to all. Knowing his players, he must develop their fundamental hockey skills and pull their personalities together as a team toward a common goal. He needs to think of himself as a teacher seeking to develop his players' skills. He is constantly at work trying to increase the proficiency level and satisfaction of each player and the team as a whole.

The following material has been organized under two main headings: 1) What Research Tells Us About Hockey And Its Players (where the coach is left to draw his own implications) and 2) Psychology In Hockey Coaching (where some of the psychological literature is reported).

WHAT RESEARCH TELLS US ABOUT HOCKEY AND ITS PLAYERS

In terms of psychology, what do we know about hockey and its players? Perhaps a logical place to begin to try to answer this question is to examine hockey as an activity.

Ice Hockey in Perspective

Among the variety of movement activity classifications that have been devised, perhaps the most descriptive and useful here is that begun by Kodym (23:39-45). Based largely upon intuitive feelings, this typology was concerned with classification of athletic activities based on the psychophysical demands required for performance. The study considered previous attempts to classify sports by their psychological characteristics and would seem by and large to be supported by empirical evidence.

In this typology, hockey, along with other team games, would be classified as a "sports activity involving the anticipation of movements of other people." Tactics and strategical thinking by participants are important. Players must react to developing situations and predict how situations will unfold. Often superior athletes in individual skills are not good in the game because they lack the ability to anticipate the movements and reactions of other people. Kodym suggests that successful individuals in this type of activity usually possess average or above-average IQs and develop the ability to apply past experiences effectively to current game situations. He further suggests that individuals participating in tasks of this nature are self-disciplined.

As one of three types of activities in this group, hockey is classified further as an activity in which direct aggression against opponents is possible. Thus, psychological qualities required are mental and physical toughness, speed, endurance, the ability to change the rate of response patterns and a resistance to pain. There is a specialization of roles, so that a variety of personality types may interact well, and the quality of team work evidenced may be evaluated sociometrically. Responsibility for winning (scoring) and losing (defending) falls to various players in unequal amounts. Players usually show tolerance to frustration, useful aggression and a high sense of responsibility to others. Hockey also involves a combination of other attributes required to perform activities in some of Kodym's other categories.

This is an interesting breakdown in psychological terms of ice hockey but it is disappointing not to find more research evidence as is beginning to appear in soccer, football, basketball and boxing. One might ask, then, "What if anything does research tell us about hockey and its players?" The answers fall into two headings—psychophysical characteristics and personality.

Psychophysical Characteristics

Age-Related Variables

In looking at man's most proficient years at sports and games in 1938, 1945 and 1951, Lehman included a glance at professional ice hockey players (9, 10, 11). His data in 1938 on 823 players, taken from the "Who's Who" roster of five annual editions of the *National Hockey Guide*, indicated that the mean age was 27.56 years with players from 19 to 41 years involved. By looking at the ages at which he found most players, he concluded that ice hockey players as a group are most frequently at their best from 24 to 25 and that the most successful five-year interval is from age 24 to 28.

In 1951 with a sample of 2,317 player-years he got similar results, finding a mean of 27.07 years and the most successful five-year period being that from age 24 to 28 years.

This data alone does not tell very much. Lehman at that time was concerned chiefly with comparing the ages at which peak performance was reached in various activities and so only made a few observations about professional hockey as a violent and vigorous body contact activity which contributes to proficiency waning relatively early.

More recent psychological, sociological and physiological research by people like Welford (27) makes it possible to look at performance in hockey in terms of more specific age-linked factors. These may be considered under the topics of motivation, psychological and physiological aging and learning.

If man can be accepted as a dynamic, homeostatic organism attempting behaviorly to maintain states of equilibrium through interaction with his environment and is chiefly guided by social motives (once his basic needs and drives are satisfied), we see something of why people play hockey when they do during their lives. We know that needs for attention and association with others may be reduced by competition and cooperation and that needs and drives for status are satisfied through personal power, prestige or status in a group. We also know that these needs are generally greatest during adolescence and early adulthood, and so we find participation in team activities such as hockey which provides this type of need reduction. As a person gets into his late twenties, he has less need for attention, association and within-group recognition and so there is a tendency away from this type of cooperative activity.

Man tends to pursue activities where he experiences success. Thus he keeps practicing and achieves maximum success within the limits of his aging biological and psychological organism. Professional players continue to participate as long as they are able to profit thereby and often do well beyond their points of maximum performance. This may explain in part the persistent performance of the Gordie Howes and Henry Richards of the hockey world.

In terms of the biological aging process, there is ample evidence of the gradual deterioration of the receptor, processing and effector mechanisms of the body after the peaks of proficiency in the early or mid-twenties. Some of these losses can be corrected, such as certain visual problems (by use of contact lenses) but others cannot be corrected, such as decrease in visual accommodation and in simple reaction speed. These deterioration processes may be slowed down by frequent and regular exercise, but there continues to be some decrease in strength, speed, power, agility, flexibility and ability to recover from injury. At the same time, these factors are very important to the hockey player.

To the aging player's benefit, however, is his "skill," in the fullest sense. Only through years of experience does he learn to eliminate irrelevant cues and responses thus allowing himself to conserve energy and yet be effective. Increasingly his performance is controlled by kinesthetic as opposed to visual feedback, as he establishes appropriate motor programs or subroutines and thus frees his perceptual and information processing mechanisms to attend to other cues which will assist him in his performance. In this way, his experience in such a tremendous number of specific situations equips him to contend better with any given situation than a less experienced individual.

Age-related factors, then, play both detrimental and enhancing roles in influencing an individual's performance in hockey at any given age. And, there appears to be a somewhat optimum age at which the average player may hope to realize his greatest potential. One might wonder to what extent coaches at the different levels have this information and keep it in mind as they train and coach hockey players season after season.

Player Motor Ability Characteristics

Sportswriters, coaches and physical educators, among others, contend that a variety of physical or psychophysical characteristics are important in ice hockey performance, but are they? What do we really know about the importance of reaction time, strength, speed, power, etc. to ice hockey playing?

There is an extremely limited amount of work in this area of hockey. In 1956 Olsen reported administering five psychological tests to 26 varsity hockey forwards from five colleges in the Boston area. He correlated the results of his tests of simple reaction time, choice reaction time, discriminatory reaction time, depth perception and tachistoscope span of apprehension with a measure of individual offensive hockey ability. The average number of goals and assists per game by each player during the season was used as the measure of individual offensive hockey ability. Correlation coefficients between the hockey ability scores and psychological capacity tests ranged from -.172 for depth perception, to +.398 for simple reaction time (20).

In 1964 in looking at anthropometric and motor performance characteristics of 14 varsity hockey players, Selder found that most of the players were dominant mesomorphs with low adipose measurements and above average in dynamic arm strength but average or below in other tests of motor fitness (21).

McGillivary conducted a similar study in 196[illegible] to investigate the relationship between hockey playing ability and total body reaction time, total body movement time, peripheral vision and depth perception. Simple movement time showed a fairly high and significant correlation with hockey ability, but all other correlations between capacities and the criterion were low and nonsignificant (12).

Metivier found no significant improvement over a season on auditory or visual reaction times among adult male hockey players (17).

In 1963 Alexander and others examined the relationship of grip strength to speed and accuracy of the wrist and slap shots. They found low positive but nonsignificant correlations between dominant hand grip strength and velocity of shots, with those for slap shots slightly higher ($r = 0.25$) than for the wrist shots ($r = 0.10$ to 0.12). Correlations between accuracy of shooting and dominant-hand grip strength were lower than those for grip strength and speed of shooting. They concluded that there was apparently little relationship between grip strength and the speed or accuracy with which an individual shoots the puck (1).

In 1964 Alexander and his colleagues took a different approach. Using a cinematographic analysis of the skating slap and wrist shots, they found that eight major muscle actions of the shoulder, arm and wrist were essential for the shots. Having tested strength in each of these muscle groups and speed of shooting, they gave their experimental group five weeks of isometric exercises. Retesting showed that this group had made significant gains in velocity in both shots as well as six of the eight strength measures while the control group showed a significant gain for one strength measure and the wrist shot (1).

This suggests that there is a measurable relationship between strength of specific muscle groups of the shoulder, arm and wrist, and performance of at least two of the many skills of hockey, and that strength improvement in these areas improves the shots.

Thus, although we know for sure that there are playing ability differences among our players and we feel that we can say where some of them lie in psychophysical terms, there is an extremely limited amount of research evidence to verify our beliefs. We know little about the particulars that separate the Orrs, Hulls, Drydens and Espositos from the mass of our hockey players.

Skill Identification and Measurement

Effective motor performance in ice hockey includes proficiency in certain basic motor skills. It seems important to be able to identify and measure these skills. Tests designed to measure the basic skills may be used to help the teacher and coach select their best performers, to equate teams and to identify the strengths and weaknesses of their team members. They also may be used to stimulate interest and effort to improve.

Relatively few skill tests are available in ice hockey, although as early as 1935 Brown suggested three items for testing the skills of women. Her items were speed skating and dribbling, goal shooting, and dribbling and dodging. Her scoring system was not explained completely and no statistical analysis was discussed (4).

In preference to putting as many as 100 players through a series of routines to select and eliminate them in successive workouts, Doroschuk and Marcotte (1965-66) developed a skating agility test. They adapted the Illinois Agility Run for use with skates on ice. This involved increasing the distance between the chairs for convenient use of the blue lines. From a standing start at A with a stick and puck, the subject stick handles the puck to B, returns to cross the starting line and zigzags up and back around four chairs placed 20 feet apart, up to the blue line at C and then returns to finish at D (Figure 1).

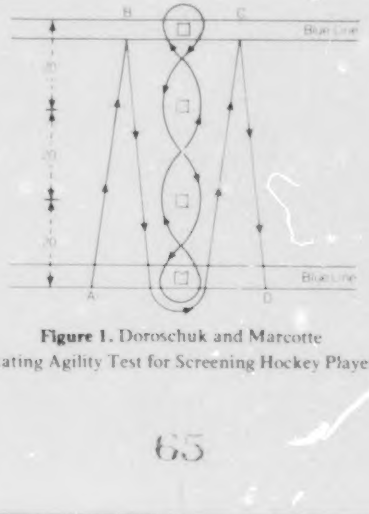

Figure 1. Doroschuk and Marcotte
Skating Agility Test for Screening Hockey Players

The reliability established by test-retest on 27 first-year college males in an ice hockey class was .93. The biserial correlation between the instructor's subjective evaluation and the agility test was .83. The authors suggested that on the basis of these results consideration should be given to the use of this test as a screening device to rate hockey players objectively and efficiently at initial tryouts, and as a short objective test for hockey ability.

Specific ice hockey skills involving speed, endurance, agility and stick handling, as performed by 18 seventh grade boys, were compared to overall ratings of the boys by competent judges to determine their degree of relationship by Cantrell. He reported that six of the nine skills related significantly to the criterion, and that these skill tests could be used in selecting team members (5).

In another attempt to arrive at an achievement test in hockey, Hache obtained a multiple correlation of .60 when the results of his test items were compared with judges' ratings. With his 23 varsity hockey players he also noted a significant contribution to the multiple correlation of two of his test items—crossovers and ice hockey ability. He then computed a regression equation to evaluate basic ice hockey skills on the basis of his data (7).

Merrifield and Walford, working with 15 male college students, developed six tests for measuring selected basic skills in hockey. The test-retest method indicated that of the original six tests, the forward skating speed, backward skating speed, skating agility and puck carry tests were reliable. Validity coefficients ranged from .75 to .96 for the four tests when they were compared to subjective rankings in each skill. Intercorrelations among the tests revealed that the puck carry test was the best single item for measuring overall hockey playing ability (Figure 2), but that at least three of the items should be included in a hockey test battery (15). It should be noted that their puck carry test is in several respects similar to the Doroschuk and Marcotte Skating Agility Test.

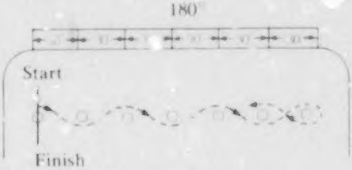

Figure 2. Ice Markings for Merrifield and Walford Puck Carry Test

Merrifield and Walford next did a study to determine if the tests they had devised and proved with college males were applicable to elementary schoolchildren. Using 94 boys between 8 and 1[illegible] years old in a Pee Wee hockey program, they again found that their four tests were reliable and valid measures of the skills being tested, although some modifications might be advisable at this age level. They suggested that the teacher and coach consider these four skill tests as an aid to evaluate the status of their personnel and to assist in grouping boys for competition where differences in their skill should be taken in consideration (16).

The beliefs of the high school hockey coaches of Vernon's survey regarding the merits of the curved stick in forehand shooting (25) was verified by Nazar's study results (18). He found that the curved blade hockey stick imparted a significantly greater velocity and was significantly more accurate than the straight blade stick for the wrist and slap shots in the skating and standing positions. He also found the skating slap shot to be the fastest and least accurate, and the standing wrist shot the slowest of the four shots studied. Alexander and his colleagues, while getting the same general results, found the standing slap shot to be the least accurate of the four types of shots and the skating wrist shot, the most accurate (1).

Personality

What do we know about the personality as well as the psychosocial foundations of ice hockey players? What kind of characters are they, and how did they become that way?

Character Traits

If we accept the theme of one of Ogilvie and Tutko's highly interesting articles, we must acknowledge that playing hockey does not change or build character, but merely allows it to develop (19). Whether or not one accepts this thesis, a great deal of understanding may be gained from looking at some of their other findings. They have identified a team sport personality as one which tends toward extroversion, affiliation with others, a lower level of aggression and a tendency to be less creative than that of the individual sport personality.

As Ogilvie and Tutko have done in other sports, at least two researchers have attempted to distinguish a hockey personality "type." One attempt in this direction was made by Bird in 1971 with 54 Canadian women intercollegiate ice hockey players. Using the 16 Personality Factor Inventory (16 PFI), the EPPS and the Personality Research Form (PRF), she found that in comparison to the national norms, the female hockey players were high in autonomy, intelligence, endurance, abasement, creativity and independence. They were low in affiliation, social approval and dominance. Ability levels were not differentiated by separate traits except by the autonomy and dominance scales of the PRF. There appeared no significant difference in team scores over a three-year period (3).

A second study, by Fisher and Shoen, has given us Sixteen Personality Factor Inventory profiles of collegiate ice hockey players (N = 15), collegiate goaltenders (N = 15) and National Hockey League goaltenders (N = 14). Their study found no significant personality trait differences between collegiate ice hockey goaltenders and players, nor between collegiate and professional ice hockey goaltenders. They did find, however, that collegiate and professional ice hockey goaltenders differed significantly from the general male population on 8 of the 16 personality traits. In comparison with the general male population, the hockey goaltenders were characterized by the following traits: more intelligent and quick to grasp ideas; more expedient and less bound by rules that dictate performance; more shy, restrained and threat sensitive; more demanding of attention and overprotected; more apprehensive, self-reproaching and troubled; more liberal and experimenting; more undisciplined and less controlled; and more tense, frustrated and fretful (6).

Although these two studies, with a limited number of subjects, do not provide much foundation for talking of personality "types" peculiar to hockey, they do suggest something of a sport specific personality that remains relatively unchanged at least over three years among the women and from the collegiate to the professional ranks among the men. This second study also suggests that, although the roles of goalers and players may be different, their personalities are not necessarily.

The Role of Culture

It is often stated that participation in sports affects the individual's personality, social interactions, character and other personal qualities, favorably or unfavorably. It is also possible that individuals with certain personality patterns might select sports coinciding with these traits. The following studies of hockey players suggest that both of these things occur.

Vaz, in his very interesting and seemingly well-documented study,* makes a strong case for hockey players developing certain character traits as a result of being part of a subculture of hockey players which, by and large, has its origins in everyday working class values, attitudes and customs (24). Webb's data on Michigan State athletes support the fact that hockey players come from families of relatively low income (26). And Vaz's observations of hockey players' personalities being molded as a result of seeing their sport as a means of social and economic mobility parallel very closely those of Winberg and Arond (28) in looking at the occupational culture of the boxer.

To what extent does this lead to answering the question of why there is so much fighting and violence in hockey?

Superstitious Behavior Among Hockey Players and Coaches**

Today, when the idea of science approaches the sacred, magical practices are usually smiled at as being amusing or frowned upon as being utterly ridiculous. As a result, people are usually reluctant to admit involvement in what others regard as nonsense, and yet the theme of superstition continuously appears in the literature of sport. Often it is seen as in Tony Esposito in his shutout streak in 1969 when he continued to wear his worn-out goalie equipment, saying, "It's not because I'm superstitious, it's just that things have been going so well lately that I don't want to change it."

Fans seated close to the Montreal Canadian's net immediately before a game's start have noted that big, six foot-four goalie extraordinaire, Ken Dryden, closes his eyes and bows his head. When asked why, he responded, "I simply don't want to see the red lights go on behind the goals when the referee signals for testing just before he drops the puck. Whenever I see them flash, I have a bad game."

Goalies are not alone in this ritualistic, superstitious behavior. Anyone who has coached or played hockey has seen good examples of this kind of thing. There is the fellow who used colored plastic tape on his stick one game for lac[illegible]hing else and now refuses to use anything but that color as a result of scoring, and there is the young man who played with only a single band of tape around the tip of his stick blade and now contends that that is the only way to play.

Sweater numbers certainly have some magical quality as any coach or manager will attest as every player grabs for numbers 9 or 4 or whichever numbers are worn by their professional hockey heroes.

While most hockey superstitions operate on an individual level, there are certain rituals acknowledged by entire teams. There is the common clustering together of team members before the game where they pile their glove-clad hands one on top of the other and go through a sort of chant and end with an often unidentifiable yell. Probably the most universal ritual occurs just prior to the game when players skate in front of their goal and tap the goalie on the pads for good luck.

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*Reading of this paper is a must for anyone interested in hockey and its coaching at the minor levels today.

**The examples of National Hockey League players and some of the ideas for this section are taken from Andy O'Brien's interesting article, "Why is Punch Imlack Happy in a Rumpled Suit," in *Weekend Magazine*, May 29, 1971, pp. 20-21, which includes material from John Wrigley's "Magic in Sport," a paper given at the Seventh World Congress of Sociology, Sept. 1970 in Bulgaria.

Why do participants of sports, where skill and hard work are generally thought to be the determining factors in success, become involved in this type of superstitious behavior?

Through research with animals and man in other life situations, the social sciences have suggested at least a partial answer. Skinner found that a chronically hungry pigeon when randomly reinforced with food would seize upon and repeat frequently whatever behavior it was engaged in just before the reinforcement. It acted as though there was something magical about what it was doing just prior to being fed and so continued to act that way, presumably in hopes of being fed again. Thus, as likely as not, this behavior would occur again at the time of the random delivery of food and would be reinforced. Soon this behavior dominated the pigeon's activity in its "belief" that it brought about the reinforcement even though the reinforcement was random (14:48).

This is not unlike Esposito in his old goalie equipment or the fellow refusing to use anything but a particular color of tape on his hockey stick. If one takes into account the partial reinforcement conditions under which this occurs, it is easy to understand why these types of responses and beliefs are persistent and difficult to extinguish. That is, our hockey player is like the primitive farmer who is dancing and it happens to rain; then, when he needs rain, he dances. Occasionally he may be reinforced again with rain, and he continues to exhibit this behavior even though reinforcement is only intermittent. In fact, research and experience indicate that behavior thus partially reinforced originally persists longer when not reinforced than does behavior 100 percent reinforced originally. Thus the hockey player persists in his superstitious behavior when he doesn't score, is scored against and is even soundly beaten several times in a row. At that point he may discover a more powerful bit of magic or blame all his problems on the referees, the coach or someone or something else.

Magic is apparently most commonly invoked where a high level of anxiety exists concerning the accomplishing of desired ends. Although the players have the skill and knowledge to win the game, there are many factors which could upset this. They are not sure of the outcome, but their rituals give them a sense of assurance. In hockey where even dedicated practice and great ability don't always guarantee the outcome, because opponents are evenly matched, player injury and other dangers are ever-present and "getting the breaks" may become the determining factor. Thus, athletes and their coaches tend to do almost everything imaginable to ensure getting the breaks, and this most often involves using what seemed to work last time.

What is more, a latent function of magic is that it may contribute to team morale. Certainly this is one of the responses the players give when asked why they huddle together before a game to give their team shout and then skate by and tap the goalie on his pads.

Strange as it may seem, superstition may play an important psychological role in the life of the athlete.

PSYCHOLOGY IN HOCKEY COACHING

In the past few years physical educators and psychologists have developed much valuable information regarding how best to use coaching and practice time. They have discovered some of the things a coach should be concerned about and some things he might ignore. Making the most of practice and coaching time is one of the great fundamentals of success in hockey. Here an attempt is made to point out some of the variables a hockey coach may do well to concern himself with in his work both in practices and games.

Practice

We learn by doing, but repetition alone is not the answer. A look at the average person's handwriting reveals that "practice alone does not make perfect." There must also be the intent to learn.

The function of repetitive practice is overlearning so that the necessary fundamental motor skills and movement patterns become automatic. The player should ultimately not have to think about his body movements. They should become internally controlled so that his attention can be focused on the position he is playing rather than how to cradle the puck or remembering to keep his head up and the puck down on most passes.

With these ideas in mind, it is the coach's responsibility to organize his practices so that maximum efficiency and effectiveness of learning occur.

Distribution of Practice

Research and experience suggest that a reasonable distribution of practice is more effective than a massing of work on any one element. Repetition, as well as bringing benefits, causes a buildup of inhibition which is a resistance to further performance and, to some extent, learning. The body and mind resist and show it in boredom and fatigue, irritation and lack of attention. After a few repetitions, little value is gained and much may be lost in time, energy and attitude deterioration. The coach is well advised to give his players short bouts of shooting broken by work on something else like skating, checking, passing or even resting and then take them back to shooting again. A variety of drills or activities obviously fits into this principle of distribution of practice.

Also, not too much should be attempted at any one time. Players should be challenged to learn and remember things, but not be overwhelmed by too many. An idea or two firmly grasped outweighs a variety of points incompletely understood. A priority of points may be tackled one or two at a time with time for the learners to internalize and practice on their own. This same concept applies to the development of fundamental skills, to an understanding of positional and tactical play and to the acquiring of a repertoire of specific plays. Learning takes time as well as practice and an intent to learn.

Scrimmage vs. Drills [Whole vs. Part Learning]

An often-asked question concerns the merits of drills or lead-up activities and more game-like scrimmages. A partial answer lies in the results of whole versus part learning research. In essence, these findings suggest that the learner gains most from being presented with the largest "whole" which he is capable of handling. What specifically is desired in the performance of this "whole" is also an important consideration.

Once the learner has a general concept of what is desired in the game as a whole, he needs to be taken back to work on parts of it separately. As he learns and develops skill in the parts, these skills can gradually be added to his play.

Learning results from repetition on the specific skill practiced, so motor activities should be rehearsed as nearly as possible at the speed at which they will be used in the game. They should also simulate other specific aspects of the game as much as possible.

The main advantage of drills over scrimmages is that in a drill the player is forced to concentrate on one specific skill, whereas in a scrimmage he has to do a number of things besides being influenced by the elements of scrimmage, such as trying to outdo the other player. Scrimmages tend to encourage players to practice and reinforce bad habits and sloppy performance. Players trying to adopt new movement patterns invariably return to erroneous ones when their attention is directed completely to playing the game. The result is that they reconfirm their errors or "get better and better at doing things wrong" in uncontrolled scrimmages.

Acknowledging that the athlete can only absorb specific amounts of instruction at any one time and that competitiveness and other elements of scrimmage are highly motivating, the coach still can do much. He can make his drills competitive and at the same time provide valuable work on specific elements. Going one step further, line rushes, plays coming out of the defensive zone, power plays, playing shorthanded or with a man advantage are all legitimate drills. They are also isolated game patterns that combine specific practice with contact, competition and self-evaluation. And, from a diagnostic standpoint, it is much easier to coach when you are directing your attention to one phase of the game rather than to its entirety.

Once the skills and ideas appear to have been grasped in drills and lead-up situations, they should be incorporated into the full game situation. This means scrimmages with a purpose. Each player needs to know what he is there to concentrate on and should be given reminders whenever it seems necessary.

Through drills each separate part of the game can be developed and polished to a high level. Then through scrimmage, all of these parts can be integrated into a smooth working, efficient whole.

The following, taken from Meagher (13:128-129), illustrates the whole versus part consideration of the teaching-learning process in hockey.

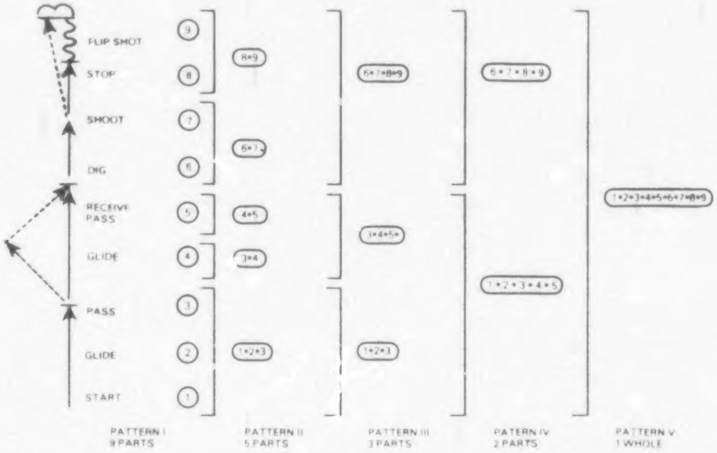

Figure 3. Let us assume that the coach is anxious to teach and have his players practice the complicated skill pattern of skating, headmanning the puck, receiving the pass back in a give and go situation, skating in on the goal, shooting, stopping and rebounding using the flip shot. The part

skills involved are starting, gliding, passing, gliding, receiving the pass, speeding up, shooting, stopping and shooting again. At least five different patterns or subpatterns may be used, depending on the ability level of each athlete:

- Pattern I includes 9 separate and distinct part skills where each is taught and practiced as a separate entity.
- Pattern II includes 5 sub-patterns, each the combination of two or more discrete skills.
- Pattern III includes 3 sub-patterns
- Pattern IV combines all 9 elements into 2 sub-patterns.
- Pattern V, the most complicated but most meaningful of the patterns, presents the 9 elements as a unity.

The lower the skill level of the performers, the more necessary it is to concentrate on Pattern V, breaking the skill down to smaller parts where absolutely necessary. The higher the skill level the more necessary it may become to "zero in" on one or more of the part skills for polishing and refining. Thus, it is conceivable that one or more players might best concentrate on giving and receiving passes (parts 3, 4 and 5 of Pattern I), while others who are quite adept at these skills work diligently on parts 7, 8 and 9 (shooting, stopping and rebounding), while still others work on the whole pattern (parts 1 to 9) until they develop an appreciation of the interrelationship of the parts.

Communication

If a coach is to get the most from his players in practice sessions and games, he must realize the importance of the method in which instructions and corrections are given. No matter how much knowledge a coach has, it will do little good unless he can get it across to his players. The more concisely and clearly he can convey his instructions, the more effective he will be.

Research has shown that motor movements which have their basis in space and time are vastly better communicated through the visual medium than any other. Yet, most hockey instructions are given by word of mouth. Certainly there are times when the verbal means is practically all that is available to the coach, but there are many other situations where the coach would communicate a great deal more through use of a demonstration, diagram or chart, sketch, magnetic board, film or movie, sequence pictures or video replay. As simple as it seems, too often we forget that "a picture is worth a thousand words," particularly in movement. This should apply to pregame "talks" and between period sessions as well as practices and other coaching sessions.

Meagher, in his excellent book *Coaching Hockey*, makes a number of sound observations and suggestions in this regard (13). He observes that there is probably no greater waste in hockey than the time devoted to detailed explanations on the ice during practices. He advises the coach to review his practice in the locker room while the players are "suiting up." If new drills are to be used, he explains them in detail at that time. On the ice, because hockey arena acoustics are usually poor, the instructor has to think through the best techniques and formations to use when brief explanations and corrections are to be made. Although some group communication is possible, by far the most important and successful type of communication on the ice is that involving the coach and one player. Mass explanations should be reserved for the locker room or lecture room.

Analysis and Correction (Feedback)

Coaches usually realize that most games are lost because of mistakes rather than won as a result of superb play. Most goals result from errors of skill, judgment, execution or position. It follows, therefore, all or most things being equal, that the team making fewer mistakes will invariably win. Thus the coach has the task of analyzing individual player and team performance, identifying basic common and individual errors and prescribing, directing, exhorting and drilling his players to the point that they commit these errors less frequently.

Learning through repetition of an act results in learning incorrect as well as correct habits, so errors should be eliminated early in learning. It is easier to start a habit than to stop or relearn a poor one. A coach needs to know the technique and other performance errors he can expect, and should endeavor to correct them before they become habit.

Meagher's five steps for correcting and eliminating mistakes seem as sound as any. He suggests 1) proper teaching of the skill or technique, 2) adequate practice, 3) careful analysis of the skill execution, 4) a thorough understanding of the reasons for failure and 5) reasonable and practical suggestions for improvement (13:125). He points out the relative futility of making comments like "skate faster," "try harder" or "do it right." The player needs a knowledge of results from his performance. His improvement is dependent upon a clear concept of what is desired and feedback from his performance. One of the coach's most important jobs is to see that this is provided. He has to structure situations so that this information is forthcoming directly from the performance results or is provided in some form of supplementary feedback. If some of his players are weak in their skating, he may choose to put them through a test and so show them their weaknesses in comparison to others. If he finds they are continually missing their passes, he may have them count their passes completed in a given situation and then suggest how they may improve.

Videotape, with its instant replay, is proving an invaluable tool in helping coaches point out to players where they are making their mistakes in positional play and skill execution while the situation is still fresh in the participant's mind. The principle of immediate feedback is one of the most important. Also, as soon as possible after feedback is given, the learner should be given a chance to perform again, attempting to make the necessary corrections.

Generally, the more specific the information about the response, the more rapid will be the improvement. Also, positive performance feedback information is usually superior to negative. Thus, if it is possible to say how close it is to being correct rather than how wrong it is, we may improve the learning which occurs.

As a means of augmenting feedback to the coach and players, Hermiston and associates at the University of Windsor have developed an interesting statistical and computer-assisted arrangement (8). Anyone who has the personnel and/or financial resources might do well to take a closer look at this system which potentially may analyze the strengths and weaknesses of a team and its opposition during play so that feedback is available between periods. Of course the system can only be as good as the information fed into it, but with trained and specialized observers at each specific aspect of the game, the potential seems astounding. At last report it was being used to: indicate whether individual and team instruction is needed in fundamental skills; assist in establishing a game plan for individual players and the team; motivate players to become more conscious of selected individual techniques; and assist those responsible for selecting all-star teams. It should lead us also to a more complete understanding of the game.

Mental and Perceptual Training

On the concept of mental practice much research supports the worth of thinking through tasks before their execution and between performance trials. The most complete and general conclusion is that mental practice will benefit learning a specific skill to the degree that mental factors are important in that skill's performance. The speed and complexity of hockey alone would suggest that mental factors play an important role. Without a doubt, players think through what they did right and wrong when given a chance, and they rehearse their next move where possible, as in taking a face-off or beginning a break-out pattern up the ice. They watch others play and in so doing learn and gain insight into their own performances. Coaches need to recognize the necessity of this type of activity and foster it where possible.

Closely allied to this is a perceptual or tactical testing and training technique used in hockey in Europe (23:68-69) and in at least one study in America (22). In this technique the player is quickly presented pictures (via a tachistoscope) of various hockey situations. The pictures are shown for only a fraction of a second and then the athlete is asked to make several kinds of judgments: 1) what he has seen (how many players, where the puck is, etc.); 2) what has transpired previously (where the players or puck came from); 3) what will happen next (where the players are going, which direction the puck is travelling, who will get it next); 4) what he would do in the situation (what particular offensive or defensive move he would make if playing a designated role in this situation). As the time of exposure of the pictures is gradually reduced, the player learns to recognize and react more quickly to situations.

Although this is still at the experimental stage, it would appear to have potential for off-ice training of players to recognize and react quickly to various game situations. It may also enlighten us on what exact cues a superior performer uses to enable him to make the decisions he must in order to make his next move. At present we do not know very much about what exactly we should advise watching for to anticipate the movement of others correctly. Do we watch his eyes, head, body or what to know best where he is going to move, shoot or pass?

Warm-Up

It has been assumed by teachers and coaches that warm-up exercises are beneficial to both learning and performance. The experimental evidence is both scanty and contradictory. There is some evidence, though little, to support the idea of beneficial effects on learning and performance arising from warm-up in exercises related to the ones to be learned or performed. Experience, subjective as it is, would seem to support this.

If increased learning and performance benefits are experienced from warm-up in related activities, one reason may lie in increased attention or perceptive ability. Perceptively, the warm-up may serve to get the attention of the appropriate sensory and motor mechanisms by means of which learning and performance take place. Moderate activity relaxes the performer and attunes him to the task.

Both research and experience appear to suggest that appropriate warm-up becomes increasingly important with the increased age and skill level of the performer. Experience would seem to support the idea that 11- and 12-year-old boys may begin their hockey game, without loss of performance, as soon as they can get dressed and onto the ice. On the other hand, National Hockey League players appear to perform at their best only after a skating, stick-handling and shooting warm-up of several minutes. If these are sound observations, the highly skilled player may be compared to a precise measuring instrument and the young, less skilled player to a less perfected instrument. Neither instrument (nor player) has been used for some time and the situations to which they are attuned have changed. The more crude instrument (less skilled player) adjusts or is adjusted fairly rapidly to the new situation, but its performance only approximates that desired. The highly precise instrument (the skilled player) takes considerably more time to become attuned to the existing situation, but its performance once adjusted is far superior to that of the other.

One seemingly important aspect of warm-up that is often partly ignored in hockey is the close relationship between the warm-up activities and those that are to follow. For example, although passing is a very important part of hockey, it is often almost totally neglected in pregame warm-up. Also there seems to be some confusion about the purpose of the pregame shots on goal. Whether they are meant chiefly for atuning the perceptual-motor mechanisms of the field players, the goaler or both should be decided and perhaps a somewhat more game-like situation structured. The activities of our European counterparts might be studied in this respect.

Although there is a lack of conclusive research to support the use of warm-ups in learning and performing motor skills, at least nothing has been shown to be lost by their use. Their purely "psychological" value may well warrant their inclusion.

Motivation

Although much is heard about the reasons for people playing hockey, there is little solid evidence. Fisher, as part of his study, asked his college and professional goalkeepers why they became goaltenders and remained at it. They revealed that they became goalies because of 1) opportunities provided to play hockey when indeed they possessed poor hockey skills, 2) family pressures and 3) hero worship. They responded that they continue in the sport for the opportunities it provided — scholarships for higher education and increased earnings with the corresponding life style. The challenge and excitement of the goaltender's position was reported as another reason for continuing (6).

This in general would appear to be supported by Vaz in his thesis that portrays hockey players coming principally from the lower social levels of society, and visualizing hockey as their means of social and economic advancement (24).

With some understanding of the players' underlying motives, it becomes one of the coach's roles to see that the long-range and immediate motivators are always present. He must foster a desire to practice to improve, and play to win and yet not be totally defeated when beaten.

Objectives (Level of Aspiration)

Team and individual objectives are needed. The coach should help his players formulate personal and team objectives — some involve a gradual building from day to day and a continuance all season regardless of the won and lost record while others involve maintaining the right level of aspiration for each game. It is this kind of planning that has a team "up" just the right amount for each competition. It is this same kind of psychological planning and preparation that prevents individual player and team "staleness" right at the point in the season where the need for motivation and output is greatest.

Having an objective and level of achievement is important in practicing each individual skill or strategy. A player should not just shoot; he should be working to see how many shots out of 10 he can score or how many he can place in the corners. The player needs to be aware of his objectives and reminded when necessary.

Momentum and Gamesmanship

Momentum is a real phenomenon in hockey, as in many sports, and appears closely akin to the idea of an ongoing and interacting aspiration and performance level. How it is handled by the coach, both while a part of it or battling against it, certainly has important influences on the results of games. It applies not only to particular games and specific parts of games, but also to whole series of games where a team is on a winning spree or in a losing slump.

It is essential for a team with momentum to keep going; it is just as essential for the other team or teams to try to slow it down. The winning team should try to discover what it is doing that is so effective and continue to use it to best advantage. With the losing team, almost anything goes to try to break the trance. A ploy of some sort is usually employed to get a stoppage of play that may anger or otherwise disrupt the opposition. So, one sees the losing team's goaler's pad loose or stick unserviceable, or a penalty awarded that in a few seconds may turn the tide. Or, if the momentum has carried on into the break between periods, one may find a coach asking for measurement of the opposition goaler's pads. This is perhaps an exploitation of the rules, but an integral part of the psychology of coaching.

Motivation, or Common Sense?

Make practices fun, challenging and well organized with novelty contests, interesting drills and scrimmaging where appropriate. Provide a variety of methods and content but use consistency in treatment of players. Use words and other signs of encouragement where appropriate in preference to words of disparagement, although they too have their place. Be pleasant, fair and respectful of your players and they will reciprocate. Make it clear how you will select your team and what will be expected of those chosen. Be as fair, honest and constructive as possible in explaining to a player why he did not make the team. Through example and words, help the players to be proud of themselves, their team, their game and all that they represent. If they have pride, which comes with self-respect, and something worthwhile to look forward to, a great number of the other motivators will fall into place.

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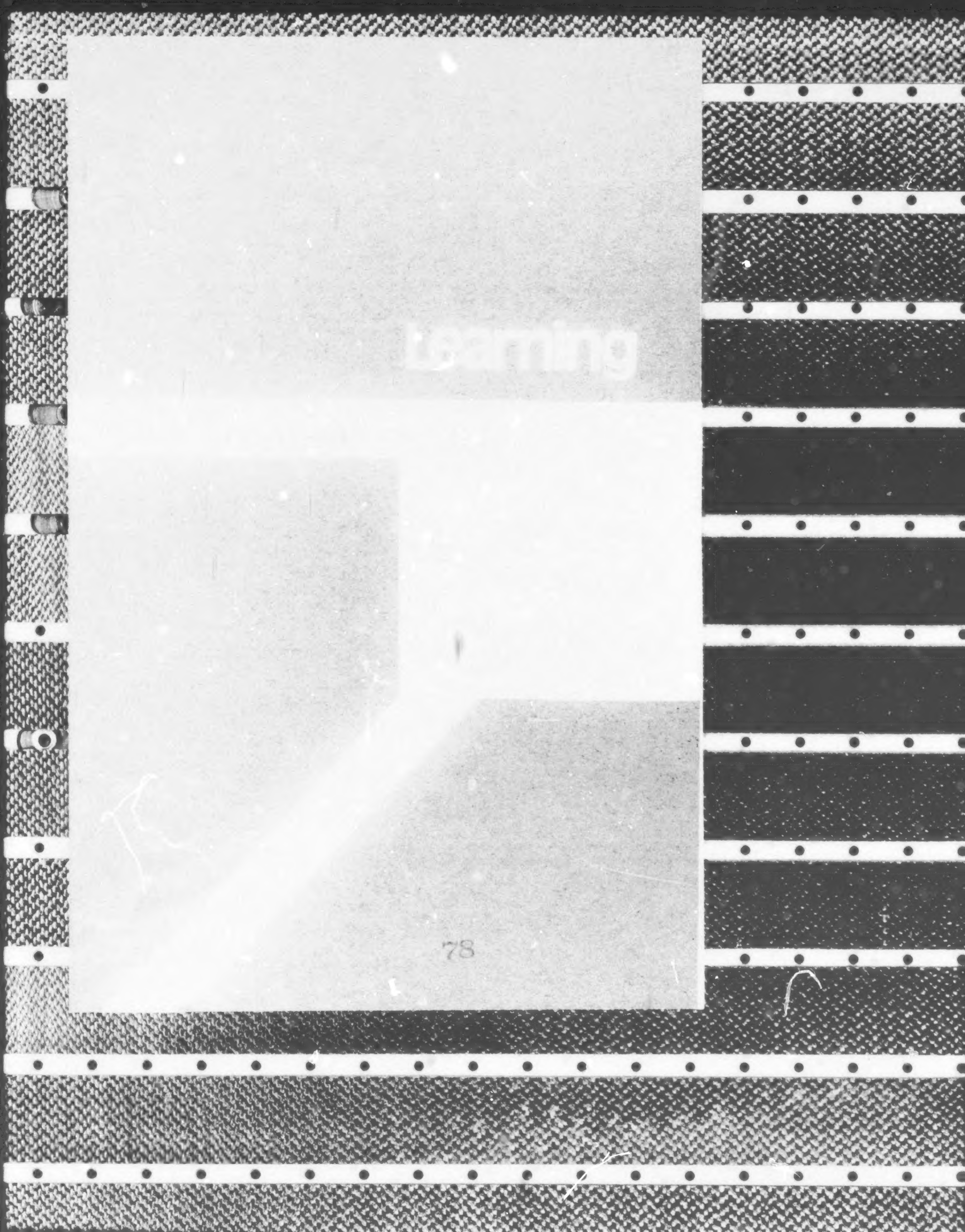

Learning

Learning and Performance at the High Skill Level

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Motor Skill Learning

Learning is a relatively permanent change in behavior resulting from experience. There are many theories as to how such change is brought about — from those who emphasize the mental aspects to those emphasizing only observable and measurable behavior. In learning motor skills, one learns to select and weave together into unified action patterns a number of movements or simpler patterns which, up to that time, have been more or less disassociated. I define motor skill learning as the purposive putting together of movements, already in one's repertoire, into an organized pattern (the word, *purposive* implies an intent, an objective, a goal). I define skill as the functioning of these learned patterns. Rushall and Siedentop describe learning as the shaping and controlling of behavior through reinforcement contingency (à la Skinner), and base learning on the relationship of the behavior to its consequence (4).

The beginning stage of acquiring a physical skill involves the obtaining of a general idea or a gross-framework idea of the action pattern desired. Some writers have preferred to refer to this higher neurological direction for action-framework as a cognitive plan or an operational plan.

I shall attempt to describe some aspects of motor-skill learning at the high skill levels and some methods employed by teachers and coaches, without any attempt to defend a specific method. First let us look at some of the basic or simpler patterns upon which the high skills are built.

During its development, the human infant makes about all the gross movements of which its body is capable. It squirms, stretches and contracts its body and body parts through most of those potentials made possible by muscular attachments. Then it develops through the stages of crawling, standing, balancing, walking and climbing. Soon the child is kicking, striking, throwing, jumping, hopping, skipping, running, changing direction, etc. Gutteridge did an extensive study of approximately 2,000 children's motor achievements before the age of seven and included, besides many of those activities already listed, proficiency in tricycling and in catching and bouncing a ball (2). Later studies of children have confirmed Gutteridge's findings as to child motor skills.

Early Automation, Then More Complex Patterns

An early study by Jones, confirmed by more recent studies, indicated that integration of these simpler types of motor activities into more complex skills begins as soon as each activity has reached a stage where all the child's attention is not required in its performance. It seemed to Jones that each activity had to become automatic before the child was free to combine activities to any great extent (3).

Hierarchies of Skill

The individual's advance toward higher levels of skill is a matter of putting together simpler acts into more complex movement continuities — of building higher hierarchies. He integrates or chains a series of successive acts into an unfolding pattern to achieve a result. He puts arm and leg movements together in swimming. He combines running and changing direction into tag games. He weaves together several simpler acts into the games of jacks, mumble-de-peg, leapfrog, playing catch. He does handstands and somersaults. He advances to exercises on the sidehorse and the horizontal and parallel bars. He progresses in Little League sports and in high school athletics.

Attention on Cue Reading

Advanced motor skill learning emphasizes perception of what to do, and much of the movement adjustment is controlled without focus of attention on body movement. In baseball, the player fields the grounder, pivots and throws to the appropriate base in what seems to be an uninterrupted continuity of action. His attention is on the ball, then on the target for his throw, not on his movements. In football, the player starts off tackle with the ball and cuts in or out according to the cues he reads from defensive player action; his attention stays ahead of body acts to catch the cue for the next act. In basketball the player learns to drive down the floor, dribbling the ball while his attention is focused ahead, searching for cues as to open men, open lanes, offensive screens, etc. In each sport the player catches and interprets key cues, then turns them over to the body for appropriate response while his attention is moving ahead to catch the next important cues. Remember that Jones reported the same type of automatic performance, then higher hierarchies in preschool children although of lower degrees of complexity (3). This separation of attention direction from body movement is familiar in the behavior of the skilled typist or the pianist reading on ahead and getting words or notes for later responses while the fingers and hands are responding to previously read cues.

Factors in Speed

Much of the learning at higher levels in ball games involves catching the cues quickly for the next appropriate act. Cue discrimination improves and the learners catch earlier-appearing cues. They can also abbreviate the cues to only the first bit appearing and fill in the rest from background of experience — from a mental construct, as it were. With learning, uncertainties are decreased and anticipation speeds response. Often the appropriate responses to cues are already preprogrammed responses. "Programmed" means that muscle commands are structured before the movement sequence begins and flow through with less attention and faster action.

Learning Precise and Rapid Perception

Discriminative cue reading and interpreting traditionally have been called well-learned perception. Perception is the organization and interpretation of sensory stimuli in the light of previous experience. The amount and type of previous experience affect the promptness and accuracy of the recognition. Perceptions are largely learned, and considerable time and experience may be necessary before prompt and precise recognition develops. Yet in physical education and sports, the responsive act is often inappropriate or too late to be effective without prompt recognition and action. It seems to take years of practice to etch out the variety of precise perceptions essential for high-level sports performances.

Transfer and Modification Without Conscious Awareness

Much of the movement adjustment in high-skill learning is transferable from previous experience. Moreover, the refinements and revisions of movements during motivated practice are often effected by knowledge of results without precise conscious guidance; i.e., one often improves during practice or competition without knowing exactly what part of the act was changed. There is, of course, trial and revision with knowledge of results and with attempt to improve.

Polish of Parts

At advanced skill levels, when analysis reveals that some part of the total act is in need of revision, the advanced subject can practice the act by focusing attention only on the part being readjusted; the rest of the act is performed more or less automatically. In putting the shot, one can focus attention on keeping the elbow close to the side and directly behind line of start of flight of the shot; or one can concentrate on the extended arm and locked wrist during tennis stroking.

Short Stimulus Duration and Programmed Response

Cue recognition seems to be greatly speeded by practice with stress on speed, and attention to extraneous stimuli is largely eliminated. Whiting says the interval needed for coincidence-anticipation ranges from 50 milliseconds to 200 milliseconds (.05 to .20 sec.) among various individuals (5). The time for airplane recognition of pictures presented on a tachistoscope achieved by Naval flying cadets in World War II was, by requirement, only 5 milliseconds (.005 sec.). Some cadets were reported to have learned to recognize tachistoscopic presentations of airplane types in much shorter time than 5 msec. Green states from his experiments in audition that the ear can distinguish a difference in pitch of sounds when the signals exceed in duration only 2 milliseconds (1). It is apparent that needed length of stimulus duration for human perception can be greatly shortened by motivated practice.

Seemingly with the extreme shortness of recognition time and the already programmed response, highly-skilled individuals can learn to react much faster than indicated by classical reaction time and movement time studies. Big League baseball players often take a step forward, a body rotation and a swing of the bat, but check the final wrist extension when the ball is low or wide of the plate. This quicker adjustment is a typical example of rapid adjustments by the highly skilled to the exigencies of the situation. Even the umpires sometimes have trouble judging this act, an act which, despite body rotation and arm movement, is legally no strike if the wrists stay flexed and the ball varies even inches from the strike zone.

Coincidence-Anticipation

Striking at a thrown ball involves coincidence-anticipation response, a response which has been found experimentally to be initiated sooner than a classical reaction-time response. Coincidence-anticipation responses are not only faster than classical reaction-time responses, but they are more susceptible to training. Motivated practice (or as the operant psychologists say, reinforced contingency) can do several things. In hitting a moving ball, for example, the subject can learn to catch earlier cues, hence initiate his response sooner. He relies on different information, decreases his uncertainty and enhances his anticipation. His past experience leads to these earlier, more precise and discriminative cue readings and decisions. Whiting reports that, in ball catching and throwing, the individual can learn by experience to observe the ball path more quickly and to focus on the target to be hit sooner (5). This same readjustment of attention would seem to apply to tennis, badminton, lacrosse, hockey and other games involving both the reception and precise projection of a ball or puck. The earlier and quicker observation permits earlier focus on the target to be hit.

Individual Differences in Potentiality for Quickness

Skill in recognizing cues quickly and accurately and responding appropriately takes much motivated practice (positively reinforced responses). A high-level performer has to catch earlier cues, be more precise in interpretation and develop preprogrammed, adequate responses. There are, of course, individual differences in the levels of cue reading and response initiation which individuals can acquire with practice. Some individuals are by nature slow in simple reaction time, hence have less success in sports requiring rapid anticipatory reactions. If they wish to excel in a sport, they should perhaps restrict themselves to sports such as golf, bowling, billiards, long distance running, field events in track — sports where success does not depend so much on fast cue perception and very quick initiation of response.

Adept perception includes selection of appropriate cues from the display and disregard of the unimportant, then the interpretation of these cues in terms of past experience. It seems that this process develops at the very high skill level until the quick recognition flows into the programmed response with some type of shortcutting within the central mechanism. This hypothesis is based on the speed of such responses, a total time from stimulus to action which seems to contradict earlier reports that choice reactions are always much slower than simple reactions. The shorter time of anticipatory response in a coincidence-anticipation situation may be a factor. The subconsciously organized, proprioceptive guidance of response without peripheral feedback may be another factor.

Expectancy and Delay of Opponent Perception

Expectancy of an act, when correct, speeds perception and response. However, expectancy, when wrong, delays perception because of the time taken for the additional new interpretation and often the time taken to check an incorrect response already started. The reinterpretation of the display and the checking of the wrong response increase the delay before the new response is started. Much of the strategy of competitive sports is based on delaying an opponent's perception and creating false perceptions. The pitcher may throw his change-of-pace ball with what seems to be the same total act as his fast-ball delivery; yet he gets the slower ball flight by moving the ball back in his hand so that it rests against his palm and the base of his thumb. The batter's false perception causes him to swing too soon.

Shorter arcs of limb movement in kicking or throwing are often used so as to be less revealing of intent to the opponent. Even the best tennis opponents were often confused as to whether Pancho Segura's short two-handed forehand was initiating a drop-shot or a hard drive to the base line. Basketball players use peripheral vision on passes lest eye-focus reveal the exact path the ball is to be thrown. The hidden-ball trick is almost as old as baseball. The modern football quarterback is a genius at delaying perception by the opponents as to which back is the real ball carrier.

Fluctuation of Attention

In fast, highly competitive games, one problem of the player is to have his attention at peak level and directed toward the important cues. High level of attention, in addition to expectancy and direction for cue focus, often involves a preparatory posture with change in muscle tonus and with preparatory muscles on stretch. Attempts to distract attention from effective focus are employed not only by the opponents but even sometimes by the opponents' supporting fans. The ready signal before the tennis serve is theoretically an attempt to prepare the opponent for reception, although highly-skilled players may vary the time of initiation of the service. Baseball pitchers sometimes try to catch the batter without his attention at its peak, either by pitching very rapidly or by using long delays before delivery. Batters learn to step out of the box when they feel their attention level waning a bit. This attention factor is the reason for the preparatory signals at the start of the track sprint. Football quarterbacks attempt to vary the signal-calling interval before the starting signal, and vary the number of counts called so that the opponents cannot anticipate on which count the ball is to be passed. Their own teammates already know which will be the starting signal.

Early Cues and Cue Abbreviation

A little more needs to be said about catching earlier cues, and even their abbreviation with filling in from mental construct. Some batters seem to catch a difference in arm and wrist motion in pitcher's delivery of the curve and the fast ball although this is not likely with some good pitchers. One defensive football lineman insisted that he could catch an early cue of ball movement by the sudden tightening of the center's fingers just as he initiated the pass. Players in various sports learn to interpret early body movements and even preparatory postures of an opponent, hence get a preliminary start in counteracting the opponent's next act.

Practice for Speed

Practice of acts with the responses timed, under conditions which encourage faster action, seems to be effective in speeding responses. Situations encouraging faster action for success are helpful. The acts are timed and improvement in speed is positively rewarded (reinforced). The goalie is bombarded by successive balls with decreasing intervals between them although not so rapidly as to prevent reasonable success in blocking the goal tries. In football the interval, from the first movement of the ball by the center until the place-kick is executed, is timed until total time can be reduced to four seconds or less. Fast starts are practiced almost daily in competition by track sprinters, in the so-called "wind-sprints" of other sports, in the start for swimming races, by the base stealer in baseball, etc. Successful competitive reactions in sports often require fast cue reading and fast response by the defensive players who have little advance information about the opponent's initiation of his act.

Complexities of the Perception Process

There are certain additional aspects of perception (stimulus discrimination and reception, organization, and interpretation) which need consideration.

First, perception is usually a combination of input from various senses plus memory traces from past experience — an interpretation of a fused stimulus pattern which may contain visual, auditory, tactual and kinesthetic stimuli. Yet in spite of this seeming complexity of the perception process, perception of relatively familiar objects occurs so rapidly as to appear instantaneous to the layman.

Second, parts of this display, this total stimulus-pattern, may never reach the awareness level of consciousness although these parts often affect the interpretation. Think of the background against which we see a figure. The background helps etch out the figure, yet we are often unaware of just what the background was. Beginning flyers have noted this effect of subliminal cues when they change landing practice from a familiar to an unfamiliar field. Even the experienced car driver adjusts his steering to many aspects of the unfolding surroundings with little or no awareness except of the major aspects of his total environment. He adjusts the steering wheel for road curves, deviations, bumps, small objects on the highway, etc., with a light finger touch while he observes other cars, talks to a companion, looks for patrol cars, etc. Subliminal stimulus-patterns and appropriate reactions are not unusual in human behavior.

SUMMARY

Several major changes occur as the individual moves from the novice stage to the highly-skilled performer.

1. The skilled performer actually relies on different and often earlier-occurring information which he discriminates within the total display or environmental situation.
2. He has learned not to attend to extraneous factors in the total stimulus pattern.
3. The cues have become much more familiar to him and are already tied with considerable certainty to the appropriate responses.
4. He learns what to expect in familiar environmental situations, and from many types of opponents.
5. He becomes more precise in his coincidence-anticipation — anticipation of exact time to intercept a moving object, etc.
6. Ability level seems greatly to outweigh any personality factors in speed of cue reading and responding.
7. Body acts change to relatively automatic performance at high skill levels, permitting direction of attention to focus on cues for the following act.
8. Some movement adjustment at high levels comes from repetition (practice) and consequent knowledge of results, without conscious awareness of just what muscle pattern is being changed or has been changed.
9. Attention to correction or modification of a part of the pattern, then drill on that specific aspect of the total act, can be done effectively while the whole act is being performed. The rest of the act can be allowed to flow along automatically. However at advanced stages, a part can be practiced as if it were in the whole act because the rest of the act is filled in mentally.
10. At high-skill levels, serious errors sometimes creep into the performance-act unconsciously and persist as part of the automatic act. The error needs to be brought to the performer's attention, corrected, then the whole act performed with the correction

inserted and attended to, until by repetition the correction becomes part of the total automatic act. This constant error is not much of a factor at low-skill levels because the low-skilled performer rarely does an act in the same pattern in successive performances.

11. Introduction of conscious attention to movement details of a complex but relatively automatic skill interferes with efficient, automatic performance. Consequently such corrections as mentioned in item 10 should be made and practiced until they fuse into automatic performance of the whole act. Otherwise they are not ready for use in contest performance.

12. A few excellent athletes perform a motor act such as tossing a free throw in basketball, or a goal try, without any delay even though the situation permits more time before initiating the act. Perhaps they tend to let conscious attention interfere with automatic performance if they delay, hence they have become conditioned to perform without hesitation. This behavior may be a result of much learning by trial and error without much analysis or knowledge of just what changes have caused the improvement. Most highly skilled athletes have learned their own individual ways of "getting set" for the act. Once they are ready, they focus on the purpose or goal and turn the physical performance over to automatic control. However, many situations in athletics develop so rapidly that fast and automatic response to cues is the only response that is successful.

13. Individuals vary greatly in size, strength, speed, endurance and specific skill backgrounds. At the high-skill levels, particularly in the open skills where response should be continually readjusted to environmental conditions, emphasis by the teacher on a stereotyped form is often detrimental to best individual performance. At high skill-levels in open skills, there is wide variability in successful forms and muscle patterns employed.

14. High-skill level is generally characterized by greater interest and concentration. Conditioning has caused less interference by fatigue. Moreover, the greater skill has eliminated the wasting of energy in unnecessary motions and extraneous acts; hence longer practices and more intense performances can be experienced profitably.

15. At the high-skill levels, mental rehearsal between physical performances is much more helpful than at lower levels. It helps retention reviews past performances and assists in directing attention toward aspects to be emphasized at next practice and toward methods which have been most effective. It also helps prevent forgetting and prevents the lowering of performance level as a result of the inhibiting effect of other intervening activities between practices and performing sessions. Tape replays, movies of past contests and so-called "skull-practices" are well-known devices to improve physical performance through mental practice. Moreover, mental practice before physical practice often gets the performer ready for peak performance. A secondary aspect of this mental rehearsal between practices or performances is that occasionally new ideas for modification or change in aspects of form or performance are incubated. At the high-skill level this type of creativity sometimes initiates marked improvement in performance.

16. Almost daily physical reviews seem to be absolutely essential to preserve high-skill levels, particularly those skills involving many fine and precise movements. Highly skilled performers, contrary to lay opinion, need as much or more practice to preserve their level of performance than was needed in the beginning and intermediate stages of their skill learning. Moreover, they often want an immediate preperformance rehearsal before competition. While stretching and warming the muscles (the old idea of warmup) are of value particularly to older performers, the preperformance review of skills seems to be the most important factor. However, there is an exception to this principle. Prolonged

strenuous, exhausting and muscle-bruising practices or contests which emphasize great endurance often profit from an intervening day or two of rest.

17. In many types of contests, the development of great adeptness in using peripheral vision is necessary for highly skilled performance. This development is necessary so that one can quickly select from a wide area those cues for subsequent action. Peripheral vision is also used instead of direct (foveal) focus to prevent early cue reading by opponents. They are often tipped off to the next act if the performer signals it by his eye focus. Games involving much passing of the ball such as soccer, hockey or basketball demand much use of peripheral vision.

18. Coaches use verbal comment and various types of signals to augment feedback as the individual performs. In addition, the coaches and teachers use many types of apparatus which furnish the performer more precise knowledge of results and effective or ineffective movements involved. Immediate tape replays will show the performer what variation in movement affected the performance, favorably or unfavorably. Exact timing of an act can inform the performer of the rate of performance when speed is important. Slow-motion comparison of tapes of several performances of an act may reveal otherwise concealed variations which affect the efficiency of performance.

19. In trying to improve cue perception by advanced performers, one must remember that perception is unique. It depends on the individual's background of experience and training, his sensory acuity, his momentary direction of attention, what he expects or anticipates and his present emotional state. Also important is the context of the whole situation, including lighting, background and the performer's degree of familiarity and spatial orientation of the performance area.

20. Although all motor skill learning is perceptual-motor, there is some difference between the high-level method of teaching or coaching the open skills (such as those used in ball games) and the closed skills (used in shot putting, figure skating, gymnastic exercises and diving). For the open skills, the methods tend to stress precise and often quick identification of cues for the appropriate act. In skills where environmental situations have little impact on effective form, the major emphasis tends to be directed toward fine readjustments of the mechanics of the motor act — perception of what to do in the open skills versus how to act in the closed skills. The latter tends to stress polish of parts of the act and stereotyping.

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Imagery and Affect in Motor Skills

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The area of sports has received little attention from psychologists. This is not to say that the learning of motor skills or aptitudes such as dexterity, accuracy of movement or other aspects of movement such as speed and endurance has been neglected. The interests of psychologists have not been in the arena of winning games as much as in the general increase of physical efficiency. It is this aspect of sport that I will talk about, as I am just as interested in losers as in winners. . .

While psychologists have been interested in the learning of physical skills (usually referred to as perceptual-motor skills), their interests have not been in the area of how a skill is acquired as much as in other aspects of learning. We have not analyzed how a little boy learns to catch a ball and, until relatively recently, we have not had even a tentative theory on which to base introduction. Physical skills have been taught by coaches or "pros" and some of these are probably good teachers but they base their teaching on experience, not on scientifically supported theory.

Mowrer's Learning Theory

Around 1960 O. Hobart Mowrer of Illinois proposed a general learning theory (2) that I shall try to relate to the area of athletic-type skills. I suspect that successful coaches use this theory intuitively although probably not exclusively. Many of you here will find much that will sound familiar, but I think what we want is a careful statement rather than hazy generalization. This theory rests on a foundation of four assumptions:

1. All learning amounts to emotional conditioning, i.e., all we ever learn is to feel good or bad, better or worse, in connection with certain signs or stimuli. Put otherwise, we never learn "how to" do anything — we only learn to "want to" or "not want to" do something. While this may sound a bit strange, it makes sense when you recognize that you cannot teach someone something he is unable to do. If he is able, you need not teach him "how." Perhaps you teach him "when." To take an example from sports, we do not learn to sink foul shots — what we learn is to feel good or bad in relation to certain stimuli depending on the outcome of our toss.

2. The signs or stimuli are of two kinds — external to our bodies or produced by our own muscular contractions — that is, our kinesthetic sense is stimulated by movements of muscles, tendons or joints — we have a sense of strain, effort, muscular tension, arm or leg or head position, etc. The important point in this assumption is that we can feel the kinesthetic stimuli that result from an action *before the result of the action* comes to

pass. Thus, as soon as we throw a basketball toward the hoop we have an inpouring of muscle, tendon and joint stimulation that we can sense before the ball arrives in the neighborhood of the basket. In relation to the first assumption, then, we have in very short order two stimulus events: (1) we feel what our bodies have done and (2) we see the ball drop, either in or away from the basket generating joy or dismay. The fact that two stimuli are paired in rapid succession is the basic Pavlovian requirement for conditioning and what happens is that a particular body feedback of a pattern of stimuli becomes conditioned to an emotional reaction of satisfaction (with success), or disgust (with failure).

3. The third assumption deals with the control of our own behavior. According to Mowrer, our behavior is controlled basically by emotion. If we feel good or better doing something, we continue doing it. If we feel bad or worse, we cease and desist or change to some other activity. Our basic motivation, in short, is emotional. As long as we are alive we move, and the direction of our movements is determined by how we feel about their continuation.

4. Finally, the fourth assumption is that in the course of learning or conditioning, the emotional pattern associated with kinesthetic feedback *begins to occur earlier and earlier* in the timetable of events so that, to continue with our example, as we make ready to throw a basketball we begin to experience the feedback stimuli from our preliminary movements and the characteristic emotional reaction associated with that feedback begins to rise. Thus if we "feel right" or "good" we let the ball go, if we feel wrong, we do not and we adjust our musculature, posture, tension, etc. until we do feel right. But feeling "right" in this situation involves a feedback pattern that we had before when we were successful. This, in turn, means that, in a sense, we must remember — i.e., we must have been conditioned, how we felt, kinesthetically, the last time the ball went through the hoop. This, in its turn, means that we have some kind of standard or model of what a proper kinesthetic feedback is. In short, we must have an appropriate kinesthetic "image" in our nervous system to serve as this standard or stimulus that generates the appropriate emotion.

Skill Learning

With the assumptions of Mowrer's theory now before us, let me turn to a general statement about the learning of any skill whether it be in sports or music or in the most abstract kind of activity, say, solving mathematical equations or creating poetry. I will restrict the theory for the present to relatively simple or single movements that may be repetitive.

As you are aware, there is a tendency in some social-intellectual circles to downgrade athletics as somehow less admirable than other human endeavors. These same downgraders rush to see Rudolf Nureyev who is as hard-working an athlete as anyone might wish to see. A performance by Heifetz or Rubinstein is basically a physical exercise as is the execution of a painting by Picasso. A golf stroke by Arnold Palmer is a work of art and a pass by Joe Namath is a piece of poetry. I will not dwell on the differences that some might wish to emphasize. What interests me is that any physical performance, from driving a nail to driving a racing car, consists of emotional and cognitive or intellectual factors as well as physical factors. The cognitive and emotional factors I wish to emphasize are the sensory feedbacks and the consequent reactions to the successes or failures that attend each movement.

Coaches and physical education instructors tend to assume that coordination is something you have or you haven't and they rarely try to teach the luckless individual who seems to have two left feet. Instead they pick their teams from those who have an ability and send the rest to the bleachers or sidelines to watch and cheer. My own interest is in trying to see what coordination is and how it can be aided or developed.

If we consider the subject of coordination from the viewpoint of Mowrer's theory, we can recognize some possible explanation for the success or failure of various individuals in many kinds of enterprise.

In the first place, we are not too likely to encounter "natural" athletes anymore than we encounter intellectual giants. On the basis of a normal distribution curve the percentages are against us. The percentage of "naturals" is likely to be about two or three percent. We expect, or should expect, good performers to practice, to have experience — in short, to have been conditioned properly in the Pavlovian sense.

Second, some people are unconcerned with the outcomes of their efforts in a sport situation. They don't care enough about scoring a ringer in horseshoe pitching or getting a strike in bowling for the outcome to matter. If you can't or don't get mildly emotional about the results, conditioning can hardly occur. Remember the emotions in question are those related to feedback stimuli and not some general excitement.

Third, and perhaps most important, some people have not learned, that is, they have not been conditioned to feedback stimuli in the sense that they are too interested in outcomes or immaterial features of a performance so that the feedback stimuli are not felt as such. The average duffer in golf, for example, does not know enough to keep his head down when driving — he has to be told; and if he remains a duffer, he never does figure out why — or in trying to high jump, pole vault, or jump hurdles he doesn't know enough to count or measure strides — his object is to get over the bar and he is not concerned with what will actually accomplish his goal most efficiently. Because, to speak loosely, he pays attention to the wrong features of a performance, he does not sense his feedbacks or react emotionally to a specific pattern of feedback stimulation that he generates as he begins his action.

Research Studies

To focus your attention on the importance of kinesthetic feedback I will describe a collection of research studies which I trust you will find hard to believe. Yet, if you do find the following report of interest, I think you may find ways to improve the efficiency of your students to somewhere near their true capacities.

Before I begin let me recall for you the practice in ballet schools of having a wall-length mirror adjacent to a practice bar. Little ballerinas hold onto the bar and watch themselves in the mirror so they can have a visual feedback of their body dispositions. They can see how high they raise their legs and an instruction of "higher" or "lower" can mean something. Naturally they also feel their extensions and flexions and eventually can dispense with the mirror. But the mirror helps. Let me parenthetically suggest that movies or TV tapes are of unlimited help, if properly used, in helping an athlete correct undesirable operations.

In the past 30 or 40 years there has been a rather large amount of research (over 25 separate studies) which has received scant attention, possibly because the studies have been sporadic and have appeared in relatively obscure publications or possibly because no one believed them. These reports are descriptions of studies of ***learning without*** *practice*. The very concept is a little disturbing to most people and you might very properly take a skeptical position on what I am about to describe.

The basic pattern, although not necessarily the best design plan, of the experiments I shall review is as follows: a group of subjects (usually children or college students) is asked to perform some simple act, e.g., a free throw in basketball, dart-throwing, or ring-toss. After a number of trials to ascertain initial skill levels, the group is divided into three equated subgroups. The first group continues to practice for some period until it shows some improvement. The second serves as a control group and does not practice at all. The third is asked to sit down, relax, and *think* about the operation about as often as the first group practices. The instructions to the third group are to imagine themselves performing the act in all its details. When the first group is through practicing, all three groups are retested. The second group, the basic control group, usually shows little or no improvement. The practice group always improves. But the third group that only sat and thought, in some 25 studies, has also shown improvement, well above the control, and frequently is as good as or better than the practice group!

Let me describe a typical study by Twining (4). Twining asked 36 college men to toss 6-inch rings toward a stake 10 feet away. The study lasted for 22 days with the following conditions:

Group I tossed 210 rings on the first day and then practiced with 70 tosses per day on days 2-21; this took about 5-10 minutes per day.

Group II tossed 210 on the first day and then retired until the 22nd day.

Group III tossed 210 rings the first day and then was instructed to practice mentally on days 2-21. Mental practice consisted of trying to imagine the activity in its several components. The members of this group reported that it was hard to concentrate after about 5 minutes but they were instructed to continue imaging for 15 minutes per day.

On the 22nd day all three groups tossed 210 rings, just as on Day 1. The percent improvement of the scores on Day 22 over Day 1 was:

Group I	Practice group	137.3%
Group II	Control group	4.3%
Group III	Image group	36.2%

Note that Group III had done no physical work of any kind and presumably had followed instructions to "visualize all your sensations, but make no moves."

A more dramatic study was reported in 1943 by Vandell, Davis and Clugston (5) who, using only four boys per group, had them toss 35 basketball free throws on Day 1. Group I practiced every day for 20 days, Group II, the control, did not practice and Group III engaged in mental practice for 20 days. The improvement in this study was 41 percent for the practice group, 2 percent for the control, and 43 percent for the mental practice group, slightly better though not significantly better than the physical practice group. Encouraged by these results, the experimenters tried college students on dart-throwing and found, after 20 days, no improvement for a control group and 23 percent and 22 percent improvement respectively for a physical practice and mental practice group.

The same basic pattern has been found by a succession of researchers for the following tasks and/or skills:

1. tapping with a stylus (speed and accuracy)
2. card-sorting
3. pegboard (placing pegs in holes in a board)
4. symbol-digit substitution — a code game

5. mirror-tracing (drawing a path around drawn obstacles while viewing only a mirror image)
6. additional basketball free-throw studies
7. additional dart-throwing studies
8. playing new piano compositions by competent pianists
9. the high jump
10. a gymnastic stunt — single leg upstart on the high bar

A summary of some of the findings of these studies follows:

1. In some studies the very good and very poor subjects did not improve as much as the intermediate subjects with mental practice.

2. It is necessary to consider the possibility that some of the practicing subjects would suffer from fatigue in studies where the practice takes place in one day and that their scores might suffer some loss.

3. There appears to be a need for some physical practice in the early stages, i.e., mental practice cannot be used from the beginning with any real effectiveness; there must be a physical basis for the mental practice to be of any value. At the very least, subjects should see someone else do it.

4. The amount of benefit from mental practice appears to vary with the task. For example, tapping did not improve much as compared with the pegboard exercise. Note that the movements involved are relatively "short and snappy," more or less one shot operations or repetitive activities rather than involved sequences.

5. No one knows how much mental practice to require, how to spread it out or how to detail the instructions with precision.

6. It appears that people who are vivid imagers, as supported by tests, do better than people who score low on imagery tests.

My own reaction to these findings was one of some doubt although I felt I could provide an account of the seemingly mysterious benefits from mental practice. To resolve my doubts I decided to conduct my own search for facts and in the past few months I have had subjects at the university play a form of table shuffleboard using a light, plastic checker and a small wand or cue with a crescent at the end to impel the checker toward a 14-inch circular target 3 feet from the starting mark. Following the usual pattern, I had practice, control and mental practice groups. All three groups were equated on the basis of their scores in the first 10 trials. The practice group continued to practice for 40 more trials, the control group rested, and the imagery group was asked to sit, fold arms and imagine pushing the checker at the target when the experimenter said, "Ready . . . Push!" After 40 such mental practice trials for the imagery group, all three groups tried 10 more times. The gain in the average scores on the last 10 trials over the first 10 was as follows:

Practice group	5.25
Control group	1.69
Imagery group	4.53

The results from the imagery group are just barely significant over the results of the control group but there are other indications of the benefit of imagery exercise. For example, all but 2 of the 16 imagery subjects showed some benefit. Of the control subjects 7 out of 16 actually scored worse. While the results are not staggering, they are sufficiently convincing to me to warrant further investigation. I am particularly interested in how much actual practice the imagery group should have to begin with and how much imagery practice should be provided. Note that imagery practice costs nothing by way of coaching salaries, supplies and equipment, risk of injury, location or facilities. While these are minor matters with table shuffleboard, they could be a significant factor in skiing, surfing or driving a tank.

I believe I can account for the beneficial effects of imaginal practice. To begin with, it has long been known, since 1931 in fact, from the work of Jacobson (1), that whenever we think of some physical act, such as lifting a weight with the right arm, action currents arising in the muscles of the right arm can be recorded with appropriate amplification. In short, we think, at least in part, about physical performances with our bodies. Such tensions, although of minute degree, can be sensed and recognized by anyone attending to them and will normally be reported as images. Shaw found that subjects would show arm tension as recorded by a galvanometer whenever they either actually lifted or imagined lifting small weights (100 to 500 grams) (3). With more vivid reported imagery the action currents were stronger and in appropriate scope with the weight level imagined. We might then assume that anyone imaging a particular performance is actually generating some kinds of tenson in appropriate parts of his body. There will be individual differences in the amounts of actual tension and in the subjects' abilities to sense the difference between one pattern of tension and another. Also, depending upon a variety of factors, a subject might pay more or less attention to such tensions. Overconcern about an outcome, for example, might detract from the vividness of the feedback stimulation. We must now make an additional assumption: the feedback stimulation must (in a real sports or skill situation) have been conditioned to an emotion of satisfaction or its opposite; to the degree that the subject feels some satisfaction aroused by tensions generated either in a real situation or imagined one, he then continues with the movements in progress. If he feels somehow dissatisfied he will check his movements, assuming this is possible, or if impossible, he will know at once that the outcome will be unsatisfactory. The expert bowler knows when he drops the ball whether it will be a good bowl or not; similarly the batter who starts his swing realizes that he will regret it if just before he began the swing he did not "feel right."

Consider now the situation with the imagery practice. There is nothing to do but think. But the thinking amounts to some degree of appropriate muscular tension which is experienced or reported as an image. The subject who is going to benefit from this experience can come to sense the kinesthetic feedback from the slight contractions, identify them, isolate and discriminate them (in a sense) and, in effect, use them in the sense of their generating some satisfaction, even in phantasy. When he is back in the real situation he can more quickly identify or classify the feedbacks as likely to generate good or bad consequences and his operations can become more effective or efficient. In short, he learns which cues are important. The control subject does not learn these discriminations or to attend to them as well and he does not react emotionally to the cues of his kinesthetic feedback; consequently, he has nothing to guide his actions. The golfer who slices his drive and curses his club or is concerned about the lost ball or other matters will continue to slice until he learns how "it feels" when you slice. He should be encouraged to slice deliberately just as drivers should be taught how to skid a car under safe conditions.

SUMMARY

What I have tried to suggest is that most, if not all, physical skills depend upon a conditioning of feedback stimuli from muscle tensions to appropriate emotions. A skillful athlete will attend to, isolate, identify or otherwise classify such feedback stimuli in terms of feels or emotional reactions. For this to happen, a learner must be instructed or forced to respond to the cues arising from his body and the consequences of his acts. The uncoordinated would-be athlete has not discovered the significance of feedback stimuli and continues to flounder inappropriately. The wallflower at the dance is too concerned over social success to attend to his feet. Anything the coach or physical educational instructor can do to bring the learner's attention to such cues should be of some benefit. Earlier I mentioned mirrors, movies and TV tapes. Perhaps we could include records where such factors as voice or speech sounds are of importance. What is important is that the learner recognize what he is actually doing under different conditions in terms of the feedbacks from his actions. Once the feedbacks are identified, alternate patterns can be attempted.

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Teaching and Coaching

Producing That Psychological Winning Edge

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Winning Factors

There are at least four factors which have influenced me in my attempt to produce a winning edge. These factors are elusive and as sharp as a razor's edge depending upon the particular sport.

First, as a coach, I think I deal with an integrated self, with an organism as a whole in a multitudinous and highly complex social status. The athlete whom I deal with reacts to his peers, to his classmates in the classroom and dining room and to his girlfriends. He acts as an integrated, complex, total organism. I can't insulate him from his setting and wouldn't want to if I could.

Second, I think the track athlete, in developing his personality, does so as a result of the sum total of the integrated and coordinated hierarchies of habits and drives, purposes and aims, which are the product of his experiences in the settings I just mentioned.

Third, I believe the behavior of the track man is modified, as is the behavior of all athletes. The modification is often in terms of early, apparently inconsequential, even trivial instances of experiences which often may have little logical but great psychological relationships.

Fourth, I think the athlete is pushed by the past and drawn by the future. He learns in terms of an interest derived from prior experiences, laboring over the initial difficulties and sustained by whatever ample and mild satisfactions are immediately involved. The athlete begins to see new possibilities, and as these possibilities develop and learning takes place, a new significance seems to emerge and the rewards become greater. The athlete's purpose also becomes richer and the whole project grows and takes on a new dimension.

These are the principles we think theoreticians could put into a frame of reference. They have served as the Walker Bible in our attempt to develop the winning edge.

With this in mind, we have tried to think how to initiate the process. This process, as Jack R ansey said, would differ according to whether the coaching is working at the high school, college or professional level. In my opinion, the high school coach has the greatest challenge. Unlike many college coaches, who enjoy the luxury of recruiting the talent they want, the high school coach has the difficult task of taking a group of young people and, using a methodology that will bring about the best results, attempt to implement this process.

After graduation from high school, young athletes come to college with a means-end readiness. They have cognitive, judgmental type attitudes that are developed as freshmen. They have preliminary hunches of what you are like as a coach and sometimes these hunches are fairly accurate. They are aware of their innate endowments and most have already decided how, if you listen and observe closely enough, they can make you a great coach. Not only do they come with a means-end readiness, but also with a means-end expectation. At North Carolina Central University we feel that one of our responsibilities is to deal with these two dimensions.

Approach to Young Athletes

We begin first by making certain things known to the athletes, one of which is to show them the records of athletes who have preceded them. These include conference, state, national and world records. We show them the Hall of Fame and All American plaques and the set of bronze shoes of eight Olympians who won five gold medals, a silver medal and three bonze medals. But most of all we try to impress upon them the fact that over several decades at the university only 11 athletes who completed the freshman year did not finish their eligibility and failed to graduate. This is an attempt to control the means-end readiness they have come with and the means-end expectation they probably have developed.

Second, we try to establish the authenticity of Walker; notice that I said authenticity, not authority. For genuine authority, which is more than a matter of official position and the ability to reward or punish, comes out of the depth of the personality and is revealed in how you deal with people. It has a realness, a presence, an aura that can impress or influence even a six-year-old. A person, as we tell our athletes, is either himself or not himself. He is either rooted in his existence or is a fabrication, has either found his humanhood or is still playing with masks, roles and status symbols. Nobody is more aware of this, although unconsciously, than athletes. We say to them, "Only an authentic person can evoke a good response in the core of other persons and only person is resonant to person."

We feel that if we start with this, at least we have begun the process of trying to produce the winning edge. I think we also accept the fact, as Dr. Hansen said, that the individual is an integrated personality with whom we must deal. He has a set of second order drives — for example, gregariousness, which is one reason we don't have our athletes live in separate dormitories even though some coaches prefer this arrangement or separate floors.

Because our students desire self-determination, in September when we start the decision-making process and ask them how good they want to be in the next year or the year after that, we tell them that this is a group decision, with some input from the coach. They will decide how many inches or tenths of seconds they wish to add to their performance. In giving them scope for individuality and freedom, we feel they must recognize that a great deal of responsibility goes with it. I tell them, "Don't tell me in September that you wanted to be treated like an adult, and then when we begin the hard winter days of February and March in preparation for the warmth of May and June, which sometimes never comes, all of a sudden you lose a lot of your age and become somewhat like the youngster who killed his mother and father in cold blood and then went to court and threw himself on the mercy of the court because he was an orphan."

Finally in our initial process making, we talk about preparation for the deeper meaning of competition and try to get the players to understand that it is far better to do mighty things, to win glorious triumphs — even though checked with failures — than to rank with those poor souls who neither enjoy much nor suffer much because they live in the gray twilight that knows neither victory nor defeat. We feel that the athlete who is trying to produce the winning edge should know that success is not final nor failure fatal. He has to understand that he is not, as Vince Lombardi often said, "to boast in the presence of the vanquished, not to wail in the presence of the victor."

Larry Black, a very fine sprinter who drew lane one all through the Olympic trials in Eugene and then, it seemed, had the misfortune of drawing lane one again all through the Olympic games, could have been so affected by it that he could have cracked up. Instead, I think he looked back to some of the things we have discussed and said to himself, "Larry, the difficult I expect you to do right away, the impossible may take a little longer." His motivation was to do the best he could possibly do from lane one.

We try to get the individual personality to become part of a team process. Sometimes it is difficult to convince an athlete that he can accomplish anything he wants as long as he doesn't worry about who gets credit for it.

We feel it is important in producing a winning edge for the athlete to set his individual goals in September, but also to keep in mind the team goals, in terms of relays and national championships. We ask him to set his goals fairly high.

Accountability

This leads to a factor considered questionable by some — our accountability rule.

At Central we have no dormitory rules or rules governing eating, social or sex habits. We have just one rule — the accountability rule — which takes care of all other behavior habits. This rule is that each team member must come to practice every day on time, depending upon what his class and lab schedules are. For every minute that an athlete is late, he and his teammates must run one mile. If one individual is late five minutes, every person on the team must run five miles. It's surprising how much this rule develops brotherly love. Noboby is unconcerned about his teammates. No runner dare go down the hallway and, seeing a teammate taking an afternoon nap before practice, pass him by. He stops, shakes him a couple of times and says, "Dear buddy, dear friend, let's go to practice."

This idea of equal responsibility is important for every athlete on the team, whether he is a star or novice, whether he is a black athlete or a white athlete. It has become extremely disturbing to me in some quarters to watch how coaches have had to shift grounds in dealing with athletes of one ethnic group or another. It's no wonder that I find some athletes, white and black, upset about the manner in which a certain segment of the team is treated in attempts to make everybody happy; it often doesn't work. There are three F's that we apply: fair, firm and friendly; I keep fair constant all the time but I'll shift firm and friendly depending upon the circumstances.

There is also the last thing we resort to when everything else seems to go wrong and there is some questioning. After you've coached for a number of years, you can always come back to the axiom, "There ain't no reason for it, it's just my policy." Although psychologists would say this is probably not the answer, it's better than no answer. Actually, it's a good answer if in the past you have allowed the individual to be a part of the group process in terms of arriving at decisions.

At North Carolina Central we have three basic D's that we accept in terms of developing the winning edge — discontentment, devotion and dedication, and discipline. These begin with a very simple premise: if you're going to have a fine team, you must first try to get some help. All other things are either relatively important or extremely important.

Discontentment

We think the winning edge is based on discontentment and, in my opinion, there are two kinds. There is the kind of discontentment that works, strives for excellence, is always in pursuit of a better self; then there is the kind of discontentment that wrings its hands, makes excuses and rationalizes poor performance. The first kind usually gets what it wants while the second kind usually loses what it has. The only cure I know for the first type of discontentment is success; I don't know of any cure at all for the second type.

Devotion and Dedication

In terms of devotion to task we remind the athletes of Longfellow's words: "The heights by great men reached and kept were not attained by sudden flight, but they, while their companions slept were toiling upward in the night." If a coach has athletes with great talent, work will improve them. If a coach has, like most of us, athletes with moderate ability, work will tend to lessen their insufficiencies. There is a certain amount of devotion to task that's required and there's a certain perseverance and diligence to tasks that's absolutely necessary if it's to lead to mastering, which is achieved only through diligent application of all there is to know about your particular skill. You become and remain the master only by reviewing over and over again all there is about it, not just what appears to be favorable to you.

I remember riding back from the coast with Bill Russell when his team, the Boston Celtics, was down one game to three. When asked what he thought the problem was, Bill said, "I don't know but I think whatever the problem is we can solve it when we get back to Boston by doing a little practice." It seemed strange to hear a guy who was coaching the world's champions talk about practice. I've also heard Arnold Palmer and Jack Nicklaus talk about taking time off from the circuit to go back to the practice tee and putting green.

Discipline

I think the athlete must have a special kind of discipline — the kind which helps him appreciate others and realize that no athlete has ever attained true greatness without feeling that his achievements belonged to his teammates and were the direct results of his teammates' efforts. Some athletes are not disciplined enough to understand that they must share, that they must always pray that they do not want to find fault with a man who limps or stumbles along the road unless they have worn the shoes he wears or struggled beneath his load. And pray not to sneer at the man who is down today unless you have felt the blow that caused his fall or the shame that only the fallen know. And pray not to be harsh with the man who sins or pelt him with worries or stones unless you are sure, doubly sure, that you have no fault of your own. Athletes who drop a baton or get nipped at the tape certainly must have a deep feeling for their teammates who may suffer the same fate if the total team is going to have the winning edge.

Will

The kind of devotion needed to develop the winning edge demands a special kind of will. Victor Hugo wrote, "Men do not fail because they lack strength but more often because they lack will." Sometimes this will, combined with courage, enables a player to have courage to fail. Now I don't mean that one becomes a good loser — I don't think there is any such thing as a good loser, except those who always lose. But one can be a loser without, as Lombardi said, "wailing in the presence of the victor." An athlete can be a good loser only if it teaches him what is necessary to do on the practice field the next time.

Stick-to-itiveness

To attain the winning edge also requires a special kind of stick-to-itiveness that every athlete must have. We tell our athletes that there are two ways to get to the top of an oak tree — either climb it or sit on an acorn and wait. Now if you don't have patience to wait, climb the tree — in other words, develop the willingness to pass up immediate pleasures in favor of long-term gain.

Maturity

Dedication to produce the winning edge also requires maturity. Several years ago we had a national team in Paris run against the French team. The setting could not have been worse because we were living on the Champs Elysees, two doors down from the Club Excelsior and around the corner from the Club Sexy where all the social life was happening. We naively expected the athletes to think about nothing else but track even though the managers and coaches were not doing so. The athletes could not understand why we insisted that they go to the award platform to receive their awards, but at the end of the first day we realized why. Awards were given only for first place; for second, third and fourth place, athletes got a handshake. When they asked, "Why go up there for a handshake?" we told them that in Europe the award ceremony is an important part of the total meet and that it is rude as guests not to go to the stand. We also suggested that if they didn't want a handshake, they could put forth a little bit more effort to earn the award. Most accepted this explanation and the next day they did a little better. This kind of maturity is needed to produce the winning edge.

An athlete must also have the maturity to persevere and sweat out a project or situation despite opposition or setbacks. He has to have the capacity to face unpleasantness and frustration, discomfort and defeat without complaint or collapse. He must be dependable, no matter how talented he is. This includes the ability to keep his word and come through in a crisis. Immature athletes are masters of the alibi; confused and disorganized, their lives are a maze of broken promises, unfinished business and good intentions which never materialize. A mature athlete knows the art of living in peace with that which cannot be changed.

Self-Evaluation

To produce the winning edge an athlete has to be able to evaluate his performance in terms of self. How does a coach get a great swimmer or an athlete who has been to the Olympic Games as a junior to come back and want to do more in order to excel? This can be done if the coach has set his pars all along, if he has motivated the athlete to want to push back the horizons so that the golden medal is not the end. In the case of Larry Black it was a team effort with the hopes of trying to run a three-minute mile relay.

Power Over Oneself

Then by all means an athlete has to have power over himself. This is probably the most precious of all the possessions — power over ourselves, power to withstand trial, to bear suffering, to front danger, power over pleasure and pain, power to follow convictions and make decisions however resisted by menace and scorn. And the power of calm reliance amid darkness and scorn. One of the athletes on the team has a facetious saying that reflects the quiet confidence he has. "Yea though I walk through the valley of the shadow of death, I shall fear no evil 'cause I'm the fastest, meanest S.O.B. in the valley."

It's often necessary to have to reorder priorities and push back horizons for athletes who are doing far better than you had first anticipated. Try to get them to understand what was meant by the person who wrote:

> I'm tired of sailing my little boat close by the harbor shore. I want to go out where the big ships float, out on the deep where the great ones are and then if my frail craft proves too slight for the storms that sweep the wide sea o'er, I'd rather go down in a stirring fight than to drowse to death by the slumbering shore.

Push back the horizons of your athletes, keep them discontented, devoted to tasks, dedicated and with discipline in their attempt to develop the winning edge.

Coaching in an Era of Increasing Individual Awareness

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Coaches are dealing with a new breed of young people today. They are less willing to accept discipline, less willing to accept the establishment and less willing to accept the status quo. Many coaches are experiencing these reactions but don't know why they are occurring. I will note some of the major issues in the coaching of the new type athlete and examine some reasons why these are occurring. Then we can look at coaching in light of these psychosocial variables.

ISSUES

Authority

One of the major issues involves authority. Most coaches are not just fighting a particular incident but are fighting for a principle of education — the right to run their own program. Coaches fear that if they give in on a specific problem they will be beaten, and if they are beaten on one issue, the coaches feel the athletes will keep right on. It is viewed as a win-lose issue like everything else in athletics. Closely aligned to this concept is the idea that it is the coach's duty to teach the principles to the athletes. Athletics are frequently based on the concepts of training, discipline, team unity and morale. Coaches talk of the lessons that the athlete must learn—for example, the willingness to subordinate himself to a cause greater than himself, the team. The concept of the team is sometimes thought of in a political sense, as a democratic unit of the person working for the betterment of a total organization. However, most teams are not run in a democratic fashion.

One manifestation of the change in the athlete's behavior is the inclusion of the word "why" in his vocabulary. Students do not respond to an autocratic society in which members automatically do what they are told. Now it is necessary to explain the logic and philosophy behind a request. Every request is scrutinized as to its relevancy.

In a way, the athletes will put the coach down, they will test him. They play a psychological game in which they take him right to the edge of rebellion, fighting him all the way. The confrontation, however, seldom is open.

Many coaches continue to use the tough man style of coaching. I recall as a freshman in high school when my coach said he wanted our bellies tough enough that he could walk across them with his spikes. I assumed he meant it and I think he did.

Coaches with a rigid perspective have difficulty operating with today's youth. The students are smart and aware. The dedicated coach who is devoted to the job may go overboard; that dedication may look fanatical to the outsider. Today's youth is less likely to accept the old-fashioned spartan style of coaching.

Some coaches tend to look down on their athletes or regard them as naive and in need of being totally governed. Coaches frequently exercise complete control over athletes. Even if a coach doesn't think he behaves in this way it may be perceived as such by his players. To really bring out their potential a coach must understand and handle their individual needs.

Quitting

Most coaches believe that the great majority of athletes still find sports a meaningful experience. However, with the affluence of our society the athlete is often resistant and irreverent. Lacking discipline, he is sometimes a quitter; lacking patience, he pushes for immediate and total independence.

Many athletes drop out. This idea is baffling to most coaches. When rivalry does not mean much and loyalty to other causes is more demanding than loyalty to school and team and when the virtues of discipline and hard work are made to appear suspect and probably foolish, the coach and the game he teaches appear to be irrelevant. Most coaches have a sincere commitment to the game and cannot reconcile themselves to the idea of an athlete quitting.

Many athletes quit because they have outside interests. Many students are concerned with worldly affairs and more time is taken up with individual discussions. Most coaches can deal with social issues but indifference is the major problem.

Many coaches believe that kids are not as hungry as they used to be. Perhaps this relates to our affluent society. Paying the price has always been a popular phrase in coaching. However, paying the price doesn't mean as much to today's athletes.

Individuality

Although competition is still important in athletics, a change has occurred in the attitude of today's youth, the individuals who compete most actively. They do not wish to be handled as a group but as individuals, and they want to have a greater voice in what is said and how things are run. Tutko (1970) reports that in a study of over 500 high school, college and professional athletes, 71 percent of them expressed these feelings. There seems to be a strong desire for active parts in the functioning of teams. These concepts are in direct opposition to the traditional approach to coaching where the team is treated as a group.

The data also reveal that athletes wish to be treated in a mature, straightforward manner as intelligent, perceptive individuals. "In many cases, this is far from the traditional coaching technique of very strict discipline, rough, tough, hard-nosed coaching where the weak athletes are weeded out and the tough athletes browbeaten to make them tougher men" (Tutko, 1970). Many athletes actively rebel against the traditional philosophy of coaching.

Communication

Another problem centers around the lack of communication. Students are difficult to inspire today. Many of the phrases used in athletics, the athletic cliches, appear to be lies to the youth and they resent being lied to. Books by professional athletes (Parrish, Megany) call attention to the fact that high school, college and professional coaches lie to athletes to get them to do what is best for the team. The athlete pretends he doesn't hear when the coach lies or manipulates the players.

One of the main cliches in college athletics is the "student first" myth. Although many coaches take pride in their players' academic and professional development, athletes are really recruited and their services paid for. Most athletes understand this procedure and assume that the coach only wants them to study so they will maintain their eligibility to play. The NCAA regulations state that a student may not be deprived of his scholarship for reasons of discipline or for not performing on the field. This rule is designed to protect athletes from unfair treatment by coaches based on the assumption that the athlete would assume his responsibilities. However, students have quit the team thereby ignoring their responsibilities and yet wanting to maintain their scholarship. New NCAA regulations offer protection for both coach and athlete.

Politics

Nationalism has always been attached to athletics. One seldom hears the National Anthem except at the beginning of an athletic event. Some athletes object to being used as political pawns. Most half-time shows are patriotic and nationalistic demonstrations. When athletes do not stand for the National Anthem or participate in some other demonstration they are frequently reprimanded. On the other hand, some athletes view sports as a political springboard to publicize their demands.

Race

The area where the friction, frustration and confusion have been the greatest has been the relationship between the coach and his black athletes. Coaches have become more concerned about their own motives, examining how they exercise authority and whether they are acting out of prejudice. By being more introspective, they have become more tolerant and reasonable, and are trying to understand the black athlete. Alerted to the black athlete's special problems, they have sought ways to bridge the gap. In doing so, they have found more difficult problems. They have run into athletes who establish even greater demands and sometimes expect a double standard in their favor. Black athletes state that there is white racism, as if that were the only problem.

Black athletes have made demands in terms of the double standard, and many times have won their case based on black cultural demands rather than individual freedoms. They have stated that moustaches, beards and Afros are a cultural freedom, and in some cases instill sufficient fear to win their case.

Another aspect of this program has been a tendency for black athletes to increase their insulation — to withdraw and remain separate.

The black athlete is frequently placed in the middle by black pressure groups. Some pressure groups place demands on the athlete and/or athletic program and nearly force the athlete to resign if the demands are not met.

WHAT CAUSES THE PROBLEMS?

Denny (1965) points out that the transformation of the youth from a family asset as laborer to a family liability as student-consumer was generalized earlier in the United States than anywhere and has by now had far-reaching effects. This change in role has led to a condition wherein the adolescent is denied the privilege of joining the establishment until he has passed through certain lengthy rituals of socialization accepted with increased schooling and social apprenticeship.

This period of extended socialization is accompanied by certain anomolies. Today's young people are provided more opportunities to develop personal skills and knowledge, to acquire an extended behavioral repertoire, to visit places, meet people and experience the world in ways that were inconceivable a generation ago. At the same time young people have these opportunities for broadening competence and developing social and occupational skills, they are denied access to the process of social decision making. Consequently, they have a wider catalogue of competencies than earlier generations, but relatively less power over decisions affecting their lives.

Friedenberg compares the treatment of our youth to that of a colonized society. He knows that the economic position of the adolescent society, like that of other colonies, is highly ambiguous. It is simultaneously a costly drain on the commonwealth and a vested interest of those members of the commonwealth who earn their living and their social role by exploiting it. Unlike colonials, who are expected to maintain their roles on a permanent basis and accept the largess of the colonizers as their only reward, the American adolescent is expected to evolve into a full-fledged member of society. The failure of our society is that too few opportunities are provided to our youth to aid them in the transition to adult status. In addition, the longer the period of subjugation, to continue Friedenberg's analogy, the greater the danger of resentful, ungrateful and perhaps even violent response to the colonizer. This analogy not only fits adolescents in a broad sense, but possibly even more specifically, applies to certain minority groups. What we may not understand is that it is not constant rewards or absolute freedom that most young people are looking for, but rather an opportunity to participate at developmentally appropriate levels in relevant personal, family, educational and social decisions.

Another concept which must be examined in attempting to understand many of our youth is Erickson's notion (1965) of the "discontented search of youth." This apparently aimless wandering and exploration, psycho-biological in nature, is a normal part of the maturation process. It may nurture rapid physical relocation from place to place, idiosyncratic posturing, as in dance or dress, participation in demonstrations or expressions of excess behavior in a variety of ways. Whatever form it takes, it is part of the young person's search for fidelity which Erickson describes as "the search for something and somebody to be true to." This involves a need to experience a wide variety of behaviors, to try out, and try in their own fashion, various life styles, to sample diverse segments of the world.

A significant aspect of the growth process is a need to test limits of a variety of situations in order to experience their essence. This often leads to the adoption of extreme positions which are vital caricatures of the ultimate course of action adopted by mature individuals. In the absence of an opportunity to experience fidelity and diversity in the community at large, the young person, as part of his discontented search, will seek other contacts for his explorations. In some instances, temporary subcultures will be formed to provide the structure for these experiences.

Erickson also makes the point that adolescents are transitory existentialists by nature because they become suddenly capable of realizing a separate identity. They therefore can feel not only involved in acute conflict, but also very much isolated, a feeling which they are apt to totalize to the point of being preoccupied with premature wisdom or being willing to sacrifice themselves for a cause, sometimes for any escape from isolation and sense of restriction.

It is in this area of exquisite capacity to experience emotion and the frequent spontaneous expressions of emotion which accompany their search for authenticity that young people frequently alienate and frighten their elders. The adults—reared in a more restricted tradition, taught to distrust spontaneity and feelings and to worship almost exclusively at the shrine of the rational, the pragmatic and the material—are put off by the passionate outbursts of their offspring.

ALIENATION

In a sense, the socialization process of adolescents in our society has always tried to reduce alienation. However, adolescents, in their ambiguous social state, have always experienced some form of alienation. Therefore, rebellion, withdrawal, turmoil and unrelenting stress are characteristic of their development.

One of our current social problems with the young may be described as the American dilemma. It is the discrepancy between our ideals and our practices. It is the focus on this discrepancy at this time in history that has helped create massive alienation in our young people, out of a normal social process. Normally, the alienated have a feeling of powerlessness, that is, a sense of inability to exercise significant influence on the forces that control life. Accompanying this may be feelings of meaninglessness in which the individual is unable to perceive a rational relationship between his actions and significant behavioral outcomes. A third variant of alienation may be normlessness, in which the mores of society are no longer capable of providing guidelines for behavior. A fourth manifestation of alienation is the sense of isolation, so that the individual no longer has confidence in the existing social order and chooses to exist outside it as a true isolate or as a rebel. Another manifestation of alienation is self-estrangement, which might be defined as the inability of an individual to find any activities which bring him satisfaction and reward.

To talk about alienation as a single phenomenon is somewhat fruitless. The alienation of the black student from society, based on powerlessness, is qualitatively different from the alienation of the upper-middle class student, based more likely on meaninglessness.

Powerlessness

Many of the problems in schools and colleges, and specifically in athletics during the past few years, are related directly to a sense of powerlessness among the young. Whether the youth have been protesting war, attacking their curriculum as irrelevant or resisting the athletic program, much of the base is the fact that they feel powerless to have any control over what is happening to them. They express a sense of frustration in confronting an organization rather than individuals with human concern for them as people. They see the seemingly helpless surrender to a system by their coaches and a system unresponsive to the idiosyncratic needs of individuals. It is precisely the recognition of black powerlessness, coupled with the rising sense of adolescent powerlessness, that has made the black adolescent the most radical segment of American society. Much of the unrest and confrontations at colleges and secondary schools are directly concerned with the issues of race and power. Black Power as a slogan is a cry of the alienated and a demand for inclusion in decision making circles. It is a frustration associated with the weak and culturally and politically emasculated.

Meaninglessness

Meaninglessness refers to a feeling of lack of understanding or comprehension of the events which impinge upon the life space of the adolescent. Questions may be raised and unanswered about the assumptions underlying such fundamental social institutions as a nation, family or the team. Answers to questions raised by young people that are viewed by them as unsatisfactory, unclear or dishonest will lead to feelings of meaninglessness. If things do not seem meaningful, a person will drop out.

Normlessness

Normlessness is manifested by significant rejection of the mores of society, or maybe more specifically, a rejection of the mores of athletics. Most prevalent in styles of dress and living, in more ways it reflects the most obvious element of alienation. The countersocial accouterments of normlessness include idiosyncratic hair styles and clothing. In many ways, the more offensive the style and stimulus, the more effective is the communication. Consequently, added to the clothes and hair configuration is the use of obscenity as a weapon. That's right; some athletes are saying they do not accept the norms of the athletic programs. If given the opportunity, they may not have better norms to offer, but they feel powerless to participate in that process, and therefore, the whole situation seems meaningless.

The Chart

Let us look at a social phenomenon that was extremely striking during the 1960s. During these years certain cultural manifestations among middle and upper class youth were, to say the least, startling and shocking to persons who highly valued or were accustomed to more traditional forms of culture and personal behavior. These manifestations were characterized as the youth rebellion and its values were called the counterculture of the humanistic left.

To clarify the counterculture, see Table 1. Fundamental ideologies are classified under one or more of these columns. The older generation would probably have been in columns three and four, although two generations ago it would have been exclusively in column four. Today column two probably looks more reasonable than column four; in fact, the younger a person is, the better it looks. This chart is one way of considering value shifts. For example, the bottom or pathological half is almost the same as the critical description of the counterculture. Generally, there is a movement in our society from the right to the left of the chart. This movement is slow, normally taking at least a generation to move from one column and pick up another. In a few individual cases the change is faster but usually has some character of the new life conversion or severe internal dislocation.

Of course, columns one and two are the counterculture. A person who has abandoned four altogether, is, at most, only marginally loyal to column three, and gives some of his ideology to columns one and two which may be identified as the humanistic left. The change in the meaning of the word humanistic is fascinating. The nineteenth century historians who coined the term used it to identify renaissance intellectuals who promoted column three at the expense of column five. In the early and mid-twentieth century, people who called themselves humanistic emphasized column two over column four. Today, younger people who are humanistic reject column three for column one.

To what extent will the youth culture of the 1960s reflect on the total culture of the 1970s and 80s? While some observers of contemporary society believe that the counterculture is a wave of the future, others assume that this view is naive. Much of the discussion of future values is based on the assumption that our culture will inevitably continue to move to the left on this chart. Although the evidence is mixed and fuzzy it is more likely that the counterculture of the 60s has peaked and will continue unchanged. Never-

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TABLE 1.
U. S. SOCIAL AND POLITICAL IDEOLOGIES TEND TO EMPHASIZE*

(1) Transcendence	(2) Impulse	(3) Reason
(Leading to, at best, a Reasonable or Acceptable Emphasis on)		
Spirituality	Freedom	Rationality
Mysticism	Creativity	Synthesis
Reverence	Perception	Calculation
Idealism	Spontaneity	Planning
Altruism	Self-actualization	Prudence
Pan-Humanism	Participation	Comprehensiveness
Perspective	Sensory Awareness	Flexibility
Detachment	Joy and Love	Moderation
Openness	Ecstasy	Meliorism
(But with a Corresponding Potential for a Pathological Degree of)		
Dropping Out	Anarchy	Dehumanization
Passivity	Lawlessness	Scientism
Unworldliness	Chaos	Technocracy
Cultism	Violence	Rationality
Withdrawal	Nihilism	Meritocracy
Mysticism	Selfishness	Theorizing
Faddism	Promiscuity	Abstraction
Superstition	Other-indulgence	Calculation
Naiveté	Self-indulgence	Indecision

* Anthony J. Wiener is largely responsible for this chart, which appears in *Things To Come* by Herman Kahn and B. Bruce-Briggs (New York: Macmillan, 1972), p. 90.

theless the counterculture has had an effect on the values in our society and the way individuals function with each other and with institutions.

The ideologies under number four—dedication, loyalty, responsibility, tradition, obedience, sacrifice—are the watchwords of coaches. These words are apparent in the beliefs and descriptions of the foundation that we will build character, develop team unity and provide a winning combination. In contrast are the terms under column two—freedom, spontaneity, self-actualization, participation. These are the ideologies of the counterculture.

Even with these value differences, it is possible to work together in the normal range of encounter. It is at the extremes that one finds difficulties. Let us look at the bottom half of the chart which is described as having potential for a pathological degree of these ideologies. If the coach is too strong in his value position he may be described as fanatic, despotic, authoritarian, sadistic, punitive, rigid. These are the terms used by people reacting against the coaching position. Accordingly, terms describing athletes or other students in the counterculture would come from the low end of that column—dropping out, passive, anarchistic, lawless, selfish and self-indulgent. When an athlete exhibits the latter values it makes him far removed from even a moderate position of the coach's ideologies, and when the coach is at the extreme of his values it puts him distant from the moderate value position of the counterculture.

(4) Conscience	(5) God's Will	Common Possibilities
(Leading to, at best, a Reasonable or Acceptable Emphasis on)		
Dedication	Revealed Truth	Individual Meaning & Purpose
Loyalty	Worship	
Responsibility	Salvation	Social Cohesion
Order	Awe	Humanism
Organization	Dignity	Inner Tranquility
Tradition	Eschatology	
Justice	Righteousness	
Obedience	Submission	
Self-sacrifice	Fatalism	
(But with a Corresponding Potential for a Pathological Degree of)		
Fanaticism	Fanaticism	Elitism
Despotism	Dogmatism	Self-righteousness
Authoritarianism	Bigotry	Intolerance
Sado-masochism	Intolerance	Cultism
Vindictiveness	Superstition	Hypocrisy
Punitiveness	Hypocrisy	Pharisaism
Guilt	Pharisaism	Bigotry
Rigidity	Passivity	Rationalization
Callousness	Fatalism	Callousness

RESOLUTIONS

How can we coach in this era of increased individuality? I have no simple answers. In fact, some of my comments will kick at the props that have become popular in sports psychology. A psychologist would suggest that primary resolution is between the coach and his individual players. Let us look at that process.

The Coach's Personality

To understand the athletic situation, one must begin with the coach His performance depends upon his personality, wishes, needs, philosophy and attitudes which are invariably reflected to the team.

Just as there are individual differences in athletes, there are a variety of personality types in coaches. The first principle in working effectively with the psychological aspects of coaching is for the coach to understand himself. Although it is complex and difficult to know one's self, the psychological insight gained therefrom can offer increased effectiveness in coaching.

Tutko and Richards (1971) classify coaches into five general categories: the hard-nosed or authoritarian coach, the nice guy coach, the intense or driven coach, the easy-going coach, and the businesslike coach. There are obviously some advantages and disadvantages of each category and most coaches do not fall clearly into any one of them.

Let's look at these categories in terms of the ideologies chart (Table 1).

The hard-nosed or authoritarian coach generally believes in strong discipline and uses punitive methods to enforce his rules. He is fairly rigid about schedules and plans and may be sadistic in responding to athletes. He is generally not considered to have a warm personality. He is frequently well organized and plans a program. He does not get too close to his athletes and prefers weaker people as assistant coaches. He is frequently religious or moralistic and may be bigoted or prejudiced. This type of personality fits into the number four ideology slot. He believes in dedication, loyalty, responsibility, order and tradition. When he gets really strong in these characteristics he may, in fact, be authoritarian.

The nice-guy coach is usually liked by a number of people and very considerate of others. He generally uses positive means to motivate athletes. His planning is very flexible, sometimes even chaotic, maybe more experimental. This type of personality is less easy to categorize as to ideology. I think he would belong to the humanistic left described earlier which may fall into category three with a lot of personal leaning to column two. At first blush, at least, this type of personality may be more appropriate for working with the new type of athlete. The advantageous aspects would include a good team cohesiveness, a relaxed team which produces what is expected of it and a coach who is probably better able to handle problem athletes. However, the coach may be seen as weak and able to be manipulated by the con man and other types of problem athletes because he may not be firm enough. Also, it has been suggested that he may lose the socially inhibited athlete.

The intense or driven coach in many ways is similar to the hard-nosed coach. He has a similar emphasis on discipline and strength of will and aggressiveness. However, he is less punitive and more emotional. He lacks composure, is frequently worried or overemphasizes or dramatizes situations, and takes things personally. He usually has a complete knowledge of the game and pushes himself with his accomplishment and tries to motivate his athletes by his own example. This type of coach would probably have the ideologies of number four. He would probably work hard, support his athletes when they work hard, and would produce a team that is motivated for a contest. He may frighten athletes by demanding so much and have difficulty working with athletes who appeared lazy and with problem-type athletes.

The easy-going coach does not build pressures on himself or his team, doesn't take things too seriously and looks at the whole affair as a game. He dislikes schedules and organizations but is not rattled by them. He appears to have things under control. He puts little pressure on his team and there is a greater feeling of independence from the coach. This type of coach may be of the humanistic left category that is between columns two and three.

The business-like coach approaches sport in a calculating manner. He is logical in his approach and cool in his interpersonal behaviors. He is intellectually sharp and emphasizes out-thinking the opponent. This type of personality would possibly fall in column three and would emphasize his rationality, calculation, planning and comprehensiveness. Such a coach may be difficult on disorganized athletes who are interested in freedom and individuality and his business approach may miss athletes who are motivated emotionally.

The Coach's Philosophy

The coach must develop a philosophy for coaching and working with athletes. Because coaches are rarely taught how to handle interpersonal behavior, they rely on a personal philosophy which has evolved through their experience or they imitate coaches they have had. Many coaches don't develop a philosophy until they have had many years of experience. A person's philosophy of coaching is closely related to his philosophy of life. It will be eminent in the way he approaches every task and individual. The coach's philosophy will certainly be seen in his teams and he may have a lasting effect on the values and personal behavior of an athlete working with him. Producing a long-term effect involves more than teaching an athlete the fundamentals of sport; it involves dealing with him as an individual. To treat him as an individual the coach must know him personally as well as how to teach him the sport and best employ his talent.

A coach is quite likely to adjust his offense and defense or realign his relays to adjust to the talent of the year. However, coaches are reluctant to adjust to different personality types in athletes, which may also necessitate establishing different approaches in their coaching.

Although we talk about individual differences throughout our educational training, we frequently forget it when interacting with athletes, even though we are aware of their skill differences. Due to the convenience of time, or just carelessness, we may respond to all athletes with the same general pattern and try to motivate and teach them all the same way—by using the techniques that seem the easiest to us. We do not treat the athlete in a singular way.

A coach, however, does not treat all athletes equally. He doesn't give all the players on his team an equal amount of playing time. He plays them differently according to their talent and contribution.

Negative vs. Positive Motivation

A major philosophical issue for a coach is whether to motivate his players through positive or negative reinforcements. Should he criticize or compliment them or use a combination? When using punishment, the coach must be aware of its effect on the individual player. The general reaction to negative reinforcement is fear. Some athletes respond to fear by disliking the coach and trying to prove themselves to the coach by overcoming the criticism and fear. Others respond by withdrawing and not participating. When punishment is used as a major mode of motivating a whole team, the players will develop a more pessimistic point of view. They may band together during winning times but, modeling themselves after the coach's example, they will also criticize each other when stress periods arise.

Positive reinforcements have a much longer effect on an athlete. It makes him feel good about himself as an individual and his contribution to the team process. If a coach uses positive reinforcement as his main motivation, when he does not compliment an athlete, it's a mild form of punishment. He will be aware that he did not live up to the coach's standards as well as his own. It is important to work out a combination of negative and positive reinforcements that is effective for each individual as well as the overall team.

Research Studies

Cratty (1970) discusses two major areas of decision making in coaching—training sessions and interpersonal relations. He points out that the research findings which might aid a coach to develop more productive practice sessions are frequently contradictive and, therefore, not very helpful in formulating principles that he can apply. It is suggested that the coach formulate operating principles by applying common sense and research findings to actual situations in which he finds himself.

Very little research deals with guidelines for working with the unique personalities and interpersonal relationships on athletic teams. Most studies on personalities of groups of athletes are of relatively little help to a coach because they have been conducted with small samples or have used research techniques which are difficult to apply to another population.

In an attempt to learn about the athlete's personality, testing programs have been developed. Determining personality characteristics which may have some relationship to athletic performance has become popular. Some college and professional teams have employed psychologists to test the athletes. These are frequently done in terms of diagnostic tests with a description provided for the coach. One program has attempted to develop an instrument to measure specific personality traits related to high athletic achievement. It enables the coach to administer a test to each athlete and, through a profile on the sheet, receive an indication of the degree to which the athlete possesses traits that have been developed. Personality traits are divided into two general areas: desire factors and emotional factors. The desire factors relate to the individual's expectations from athletics and his willingness to work toward accomplishing his goals. Emotional factors deal with the athlete's personal attitudes and his feelings about himself, his coach and the manner in which he is handled.

Each athlete can be compared to other athletes participating in the same sport at the same educational level, and the results are reported to the coach on a nine-point scale. The profile is accompanied by a brief description of the athlete with emphasis on those traits which may present problems to the coach.

Other psychologists and testing programs have used more standard personality instruments. Many of the more reliable and valid personality instruments can be scored and give a profile and interpretation of the individual. From such a test, a qualified psychologist can interpret how an individual may react under stress and other situations.

This testing approach appears somewhat superficial, mechanistic and inhumane. Used in the right manner, testing information can enable a coach to get a survey of a large group of athletes.

Most individuals who advocate this type of testing program, however, are more psychometrically oriented than clinically oriented—that is, they are more interested in testing and dealing with profiles and diagnostic descriptions than in the clinical aspect of working with individuals. In the last few years psychological clinicians have used tests more frequently as an interview in the clinical process than having it done by a separate tester. The process of watching the testee take the instrument and respond to the items is one of the major ways of learning about him—frequently, as much as by the scores from the instrument. Therefore, it seems possible for a coach to develop a set of work samples from which he could observe his athletes under certain conditions. The coach can establish questions of what he would do under certain circumstances with a certain amount of time left and give the athlete a chance to respond. He may actually give the athlete physical things to do under certain circumstances and note his response. By participating with the athlete in this type of testing, he could learn much more about him and his reactions to situations that are likely to happen on the team than he could from a standardized testing situation.

Using the assessments of individual differences in personality traits, coaches can try to shape individual behaviors through conditioning techniques, using positive or negative reinforcements for the appropriate or inappropriate behaviors. Manipulation of an individual, let alone the relationships between team members, is particularly difficult and perhaps impossible. If the coach tries to play amateur psychologist and bungles his handling of an athlete, it appears as though there is manipulation and the athlete would certainly resent it. If you have a keen awareness of the interpersonal relationships on your team, you can do your own sociogram to look at the group affiliations.

CONCLUSION

It is probably easier for a coach to work with certain types of athletes than with other types. A coach may not respond to an athlete with characteristics he does not like. In fact, his responses may eventually lead to an athlete dropping from the team. On the other hand, he may understand a player's needs and set specific guidelines for him to follow in his quest for achievement, thereby letting the athlete meet his needs as well as be productive for the team. Team rules should provide controls to prevent an individual's trait from becoming a negative force.

In most situations players must adjust to the coach but it can be a reciprocal agreement. The coach can adjust, at least to some degree, so he is able to understand the players. This may be only an interpersonal style and not necessarily a fundamental change in the coach's personality.

Above all, the coach must know himself and the effect he has on different types of players. Then, he should know, really know, his players and treat them as individuals.

Teaching Sports Psychology: Problems and Prospects

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The University of Northern Colorado has been a pioneer in sports psychology. In 1965 it began requiring an undergraduate sports psychology course for all physical education majors.[1] From the hundreds of transcripts we receive from master's degree applicants, I would guess that only a minority of physical education professional preparation programs require such a course even today. In 1966, Northern Colorado introduced a graduate course in sports psychology. Because of our pioneering efforts we have had an opportunity to observe and be a part of the emergence of this exciting field.

PROBLEMS IN SPORTS PSYCHOLOGY

Name of Discipline

One of the rather critical problems in sports psychology is the name itself. While it has an agreeable sound, it doesn't seem to encompass any meaningfully delimited domain of inquiry. Let me give you some examples. The North American Society for the Psychology of Sport and Physical Activity recently held its annual convention. Its members are sports psychologists. Among the titles of the papers presented at the conference were "Single Motor Unit Control: Man's Finest Motor Skill" and "Information Cues and Retrieval Strategies in Motor Short-term Memory." Now, what do these papers have to do with sports? They are indeed legitimate topics in psychology, were well done and made a valuable contribution to the field of motor behavior. Their relation to sport, however, is quite remote.

The International Society of Sports Psychology has scheduled a conference presentation of papers on "Perception of Motor Skill Performance and the Intervention of Modeling Behavior" and "Attitudes of Parents of Awkward Children." While these papers probably are quite interesting, again I think their association with sports is rather tenuous.

The literature in sports psychology reflects its amorphous boundaries. And my guess is that there is little commonality in the content of courses offered throughout the country under the title of sports psychology.

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[1] We have never titled our course Sports Psychology; it is called Psychological Kinesiology and deals with factors affecting motor learning and performance with emphasis on sports. Our approach is neuropsychological in that we try to relate neural function to motor behavior. This, we think, enables the students to have greater insight into the "why" of motor behavior.

Perhaps this situation is to be expected in a field as new as this one. Indeed, psychology itself is an infant among academic disciplines and is still wrestling with its rightful domain of inquiry. I am not suggesting a name change for sports psychology. I am suggesting, however, that the discipline should have some unifying characteristic and I don't think that research on mental retardates' ability to walk balance beams fits into a context of sports psychology, as important as that research may be. If the domain of inquiry is to deal with all matters of motor learning and performance, I think a name other than sports psychology should be adopted.

Teachers of Sports Psychology

A second problem in sports psychology is who shall teach it? Psychologists and psychiatrists have studied exhaustively the behavior of man and lower animals but have displayed a blissful unconcern with the psychosocial parameters of sports. Not long ago Edward Bilodeau, a rather prominent psychologist before his death, said: " . . . few investigators (meaning psychologists) care much about motor skill qua motor skill" (1:vii). This has been the prevailing attitude of psychologists up to quite recently. However, the situation is changing and psychologists are getting "into" sports. Tutko and Ogilvie have been the two most visible psychologists working in sport over the past five or six years, but other psychologists are now coming forward. For example, in my own state there is a clinical psychologist at the University of Colorado, Denver Center, who is offering courses in sports psychology and a psychologist at Colorado State University who is working with the U. S. ski team. Presumably, similar events are going on in other states.

Major credit for the development, up to now, of sports psychology in the United States must go to physical educators. Men and women in this profession have served as the catalysts through their teaching, research, writing and promotion of sports psychology associations. Where sports psychology has been taught in universities, it has been taught generally in the physical education department.

In the past, since psychologists have not been professionally interested in sports they have not objected to physical educators offering courses with the word psychology as part of the title but conditions are changing and the future may see psychology departments objecting to physical educators teaching psychology courses. Indeed, several universities have already become involved in this procedural question. If psychologists do wish to study sport and offer courses in sports psychology we are definitely in for a major problem, if physical educators and psychologists insist upon maintaining traditional academic disciplinary integrity. I hope this problem will be solved through interdisciplinary cooperation whereby team teaching, dual-appointments of faculty and other accommodations toward harmony and the advancement of the field are held to be more important than academic territorial imperatives.

Competency of Teachers

A third problem in sports psychology deals with the competency of the teachers. A new field must necessarily begin with a cadre of individuals teaching subject matter which they have not been formally educated to teach. William James, one of the early leaders in American psychology, had no formal training in psychology; he had an M.D. from Harvard. Edward Hitchcock, the first college physical educator, had no formal preparation in physical education; he, too, was a physician. Many other examples could be cited of persons who have made significant contributions to fields of study other than the ones for which they were academically prepared.

Many who have been the pioneers in teaching sports psychology over the past seven or eight years were not prepared in their graduate programs to work in sports psychology. The subject didn't exist in university curricula until the past few years. There was no way to take a sports psychology emphasis until recently. If you expected to gain a graduate department's approved pat on the head in physical education, you specialized in physiology of exercise, biomechanics, or at least curriculum or administration. Of course, there were a few lonely souls who did motor learning theses, but generally they had had little academic preparation for such work.

Many of these pioneers in sports psychology have had to do a lot of self-education. They have learned the subject through individual reading and study. Others have returned to graduate school and taken courses, sometimes even degrees, in psychology to develop a strong foundation for working in sports psychology.

While these practices are all that one can hope for among pioneers in a field of study, there are better ways to develop competency for teaching and doing scholarly work in a subject once it is firmly established. With the rapid expansion of sports psychology as a field of study, there is a corresponding need for highly competent teachers and researchers. And this is a major problem today.

We need to develop a course of study for the aspiring sports psychology teacher and researcher to take in order to become professionally competent. What are the academic experiences which a specialist in this field should have? What are the necessary competencies? How much "pure" psychology is needed? And in what areas of psychology? These and other related questions need to be dealt with in the near future. Indeed, I would like to see a national conference which focused on the preparation of competent sports psychologists.

Relationship between Sports Psychology and Sports

The final problem I am going to discuss concerns the relationship between sports psychology and sports — the athletes, coaches, fans and teams. Someone once said with regard to psychology and education that a rabbit's foot was about as valuable to the teacher as all of the information that psychology could provide. At the present, about the same charge could be made for sports psychology and sports. Coaches and athletes can claim rightly that sports psychology has done little that is relevant to the day-to-day activities of coaching and participating in sports.

If one reviews the books and journal articles which come under the heading of sports psychology literature, it will quickly become evident that the material is tangential to sports. Most research related to factors affecting motor behavior such as practice schedules, whole-part learning, feedback, transfer, motivation, etc. has been done in laboratory settings using tasks such as ball juggling, mirror tracing, and so forth. Research with sports skills in dynamic, real-life sport settings is very scarce.

Laboratory research is necessary to advance knowledge in every field. But some semblance of balance is needed whereby research is done in the environment where the domain of inquiry is, in this case, sports settings. To talk about sports psychology without focusing research work on the sport environment is like industrial psychology never going into industry to collect data.

The eastern European countries, especially Russia, are way ahead of us in taking their sports psychology research into the playing fields and locker rooms. Unfortunately, most of their literature is unavailable to us so we must produce our own body of literature and research based on information that we obtain if we expect to have anything relevant to say to coaches and athletes. They desire our assistance, but we will have to come up with something better than prescriptions based on data collected from a mirror tracing task.

We all know that the laboratory enables the researcher to control variables which cannot be as easily managed in the field setting. But there are variables in the dynamic setting which cannot be duplicated in the laboratory and these are critical to the learning and performance which occurs. My guess is that a good deal of the motor learning and performance research findings from laboratory work does not apply in the field environment. But that is only a guess. Data are needed to support or refute it.

Succinctly, I am saying that both laboratory and field research is needed in sports psychology. Up to now we have given too much emphasis to laboratory research at the expense of field work and have tried to make sports behavior prescriptions based upon laboratory findings when what we need are findings from the sports field which can then be applied in the sports field.

PROSPECTS IN SPORTS PSYCHOLOGY

What does the future hold for sports psychology? I think the prospects are quite exciting, and I fully expect that it will become one of the most significant forces in directing sports in the next couple of decades.

One exciting prospect that I envision is the coordination of efforts between sports psychologists and coaches and athletes. Sports psychologists can learn much from coaches and athletes, if they get out of their ivy towers and into the locker rooms and onto the sports fields. Coaches and athletes can learn from sports psychologists. Perhaps a close bond of cooperation can be built to serve as a basis for the promotion of sports psychology and excellence in sports performance. Perhaps coaches will come to request the consulting services of sports psychologists; perhaps teams such as our Olympic team will employ a sports psychologist. Some European countries are already doing this. For example, Miroslav Vanek has been assigned to the Czechoslovakian Olympic teams for the past two Olympiads.

Another prospect is the sports psychologist as coach. I think it would be interesting to see highly competent sports psychologists serving as coaches. This is asking no more than the highly trained medical school student to go out and practice medicine or the business administration professional to run a business. Of course we need the medical researcher to do the basic research, the business administration theorist, the sports psychology teacher and researcher; I'm not suggesting that everyone be required to toil in the fields. But we do need the well qualified in a field to actually practice what they know. The sports psychologist-coach is an exciting prospect to me. He might, through his coaching techniques, serve as a model for other coaches. He might exemplify the use of sports psychology research. And he might use the teams which he is coaching for the conduction of action research.

Another prospect which I envision for this field of study is in the area of interdisciplinary teaching and research. As psychologists become more familiar with the potential of sport as a topic for study, and physical educators become more competent in theoretical and empirical work in psychology, there will be an excellent basis for cooperative teaching and research efforts. A team teaching approach to sports psychology instruction has great potential for capitalizing upon expertise in the two fields of physical education and psychology. The enormous advancement of knowledge increasingly is demanding expertise which cuts across traditional disciplinary lines. So the physical educator who wishes to do research in exercise physiology is finding that a team made up of anatomists, histologists, physiologists and even physicians frequently is needed to complete the task. In like manner, sports psychology may require the use of physical educators, psychologists and perhaps others to conduct meaningful research. The prospects of professional activities of this kind are inspiring to me.

The last prospect which I wish to mention is concerned with the role which sports psychologists might play in the future for improving the quality of the sports experience. I hope sports psychologists will look beyond the winning and losing aspect of sports. I hope they will choose to define excellence in sports as more than running faster, jumping higher or throwing farther; more than "didja win." I don't have anything against winning; it is a legitimate goal in agonistic activity. But I think we have subordinated other dimensions in the sport experience to the great god "win." In all due respect to the organizers of this conference, you notice that the theme is "The Winning Edge." I agree with Jack Scott that sports psychology must not become the adversary of athletes nor a force for prescribing how coaches can con athletes into performing; instead sports psychologists must work toward building a humanistic approach to sport.

Abraham Maslow remarked that psychology has had notoriously "little to say . . . about beauty, art, fun, play, wonder, awe, joy, love, happiness, and other . . . reactions and end-experiences" (2:131). The same charge can be made about sports psychology. In sport there are almost no studies which focus on creativity, joy, self-fulfillment, or on sport organizations which facilitate these qualities. The concern has been on the instrumental aspects of sports while the expressive potential has been virtually ignored.

Sports psychology in the future might become concerned with the consequences of the sport experience from the standpoint of human growth and self-fulfillment. It might look at such things as how sports facilitate or hinder the development of self-concept, self-actualization and other qualities related to the healthy personality. It might examine the extent to which coaches contribute to growth-promoting human relations.

The problems which sports psychology is currently experiencing are probably to be expected of a field so new and dynamic. It is hoped that many will be solved with stability and maturity. The prospects for this area of study are so fascinating that I can hardly wait to see what happens in the next decade.

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Development of Values Through Sport

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A *value* is something on which we place a high priority. As employed in this article, it is a belief which influences both one's attitude and behavior. It is an ideal which tends to govern one's conduct and affect his decisions.

One's value system is an integrated conglomerate of values, organized in order of importance and forming a major component of one's philosophy of life. One's value system serves him in many different situations: at home, in school, in the community, in business and in athletics. A value system is not suddenly formulated but is gradually developed over a long period of time. It is the end-product of the home environment, influence of peers, teachings in school, feedback from activities and all other experiences which are part of life. A value system tends to stabilize one's conduct and serve as a guide to behavior.

What is, or should be, the role of athletics in the development of the participants' value systems? We are all familiar with the statements made by speakers at athletic banquets and elsewhere which assert quite positively that participation in sports develops courage, determination, perseverance, loyalty and similar qualities. We must be careful that we do not infer causation merely because we can observe such traits among superior athletes. It is perfectly possible that those who possess such characteristics tend to be successful in sports. Sports, per se, do not always lead to the development of these qualities. There is some justification for the allegations of chauvinism which are directed at many of us who are coaches and physical educators.

I would like to examine this subject briefly under five headings: 1) transfer, 2) nature of athletics, 3) emulation and identification, 4) testimony of athletes and coaches and 5) challenge and development.

Transfer

Thomas Andrews and Lee Cronbach, in their article, "Transfer of Training," wrote:

> *Transfer of a previously acquired behavior-pattern to a new situation will occur whenever an individual recognizes the new situation as similar to the situation for which the behavior was learned.* We have therefore swung through a cycle, from blind assumption that transfer is widespread, through a period of skepticism when transfer was expected only in the narrowest specific knowledge and habits, to a theory which looks on transfer as common and to be expected, provided certain conditions are met.[1]

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[1] Thomas G. Andrews, and Lee J. Cronbach, Transfer of training, in *Encyclopedia of Educational Research*, rev. ed., ed. W. S. Monroe (New York: Macmillan, 1950), pp. 1483-1489.

The concept of transfer is basic to the whole idea of moral education. The notion that people can learn something in one situation which can be utilized in another is the foundation for much of what we seek to accomplish in coaching and teaching. It is particularly relevant to the development of values.

Transfer is not automatic. It occurs under favorable circumstances. The following principles are generally accepted as relating to transfer:

1. Identical or similar elements in sport or nonsport situations increase the probability of transfer. The greater the similarity between two situations, the greater the likelihood of transfer.

2. The participant must recognize the commonalities in the two situations if transfer is to occur.

3. Generalizing from specific happenings to broader life situations is important if what is learned in sports is to be applied to events and occurrences which may come later.

4. The more intelligent the individual and the more he tries to generalize, the greater is the probability that transfer will occur.

5. The coach or teacher should assist athletes to recognize similarities and to generalize from sports to other life situations.

If these principles are understood, those educating young people through the medium of sports will find many opportunities to help them develop and refine their system of values. The similarities and common elements can be identified and relatively permanent character changes effected.

Nature of Athletics

Not only do athletics lend themselves to the development of values because they facilitate transfer, they also are characterized by other qualities which psychologists and other educational leaders agree are important in character development. It is thought by many that an individual's personality, or character, is to a large degree moulded during the first 10 or 12 years of his life. For most people this means that the home environment and the elementary school have the greatest influence. However, it is also observed by those who have studied this area that if changes are to be effected as a person grows older, they will result from experiences which are personal and intense. Sports abound with situations which are emotional and dramatic and in which the individuals are completely involved. It follows, then, that there are teachable moments in athletics which should not be ignored or overlooked. These may be some of the most significant opportunities for the development of values.

Most of us have seen basketball players slam down a ball in a fit of temper, baseball players display anger when called out on strikes, tennis players throw their racket after a bad shot, golfers wrap a club around a tree, and similar acts showing lack of emotional control. Violations of eligibility rules, illegitimate financial aid, unsavory recruiting practices and exploitation of athletes do sometimes occur. Fans, alumni, news media and peers put pressures on athletes and coaches which are not usually part of other aspects of education.

Temptations to cheat, to put winning above the welfare of the athlete, to boast when winning and to alibi when losing are constantly lurking in the shadows of athletic contests. These are situations in which a wise coach, a thoughtful parent or a high principled leader has an opportunity to teach values. These are situations in which there may be personal confrontation or counsel and where the emotional overtones add to the intensity.

Emulation and Identification

Almost every young person goes through the stage of hero worship. Many boys and girls feel a need to identify with an admired and well-liked person. Quite often the object of their emulation and identification, particularly during adolescence, is a good athlete or a coach. Many coaches have had letters from former players attesting to the influence the coaches have had on their lives. Those who have worked with young people have often observed the limitation of their respective heroes. Those who are the object of emulation have a particular responsibility to set a positive and salutary example. When the exemplar behaves in a way which is antisocial or does things which are wrong, he may also be imitated and will then have a bad influence.

Testimony of Athletes and Coaches

It has been my privilege to interview and discuss this matter with several hundred coaches, athletes and students. Almost invariably they will attest to the positive influence of athletics and their coaches in their lives. While such evidence is largely empirical, it cannot be disregarded. I recognize that there are a few athletes who have been embittered by their experiences and w[illegible]m they have been harmed by their athletic experiences, but I find them to be a s[illegible]ity.

Challenge and Develop[illegible]

It has been pointed out by some psychologists and others working with youth that optimum development occurs in response to challenges which are demanding but not so difficult as to be frustrating. Pole vaulters are constantly being challenged to jump higher, basketball guards are challenged to "hold down" a high-scoring forward, wrestlers are challenged to beat their opponent, and mountain climbers are challenged to ascend the peak.

Sports are, by their very nature, challenging. They lead to self-discovery. Charles Froelicher, speaking of the Outward Bound Program, put it in these words:

> Without self-discovery, a person may still have self-confidence, but it is a self-confidence built on ignorance and it melts in the face of heavy burdens. Self-discovery is the end product of a *great challenge mastered,* when the mind commands the body to do the seemingly impossible, when strength and courage are summoned to extraordinary limits for the sake of something outside the self — a principle, an onerous task, another human life. This kind of self-discovery is the effective antidote for the indifference and insensitivity we have bred into modern youth.[2]

Certainly athletics are constantly presenting challenges. Being tested assists one in his struggle toward self-realization.

SUMMARY

The development of value systems comes about by many routes and as the result of all of life's experiences. Athletics are only one of the media through which such development takes place. Nevertheless, it is *one* and the opportunities which present themselves should not be lost. We in physical education and athletics should not claim more than we can offer; and yet we should acknowledge our opportunities and realize that the way in which we respond to the teachable moments may have tremendous significance for some individuals. That which we can do, we should.

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[2] Charles Froelicher, Make use of us, Outward Bound, Inc., Reston, VA, n.d.

Sports do provide situations which resemble later life situations; emulation, imitation and identification do occur; personal and intense situations leading to personality modification are prevalent in athletics; and mastery of appropriate challenges is the rule in well-conducted sports programs.

Let us not be conceited, chauvinistic or unrealistic. But neither should we be blind to our opportunities, shrink from our task or fail to see needs and opportunities which are abundantly evident.

Women in Sports

Attainment and Maintenance of Championship Performance

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Training for competition is a very individualized affair. It would be impossible to go into detail on conditioning programs for top women athletes since every athlete sets up her program to meet her own unique and individual needs. However, there are some general things that are very important in the attainment and maintenance of championship performance and are common to most great women athletes.

Research has indicated that women respond physically to training in the same ways that men do: (1) there is increased muscle size and efficiency; (2) the heart becomes stronger and beats more slowly; (3) the pulse rate and respiration of the athlete return to normal more quickly than that of the non-athlete after exertion.

Fundamental Training and Conditioning

Also, since women respond to training in the same way that men do, the fundamental aspects of training and conditioning are the same for women as for men. Some of these basics are:

1. The body must be faced with more demand or overload than usual if improvement is to result.
2. There must be a sequence or progression in training so that one gradually improves performance and the body can adjust to the demands being placed upon it.
3. There must be regularity in the training program.
4. There must be a program for maintenance of conditioning once the desired level is reached.
5. One must train specifically for a sport.
6. One must recognize there will be periods of retrogression because the body can't always adjust immediately to the demands being placed upon it.
7. Staleness can result from overwork or loss of interest.
8. Adequate rest and sleep are necessary to allow the body to adjust to the tremendous demands of training.
9. All individuals react to training differently, and training programs should be individualized when possible.

In training, women athletes use the same methods used by men. These include *fartlek* (Swedish for "speed play" — athlete controls her pace by speeding up or slowing down), *interval training* (controlled by the coach — involves taking a fast lap, then a slower lap to allow time for recovery, then another fast lap, etc.), *circuit training* (the athlete goes from one exercise station to another in a planned sequence and in the shortest time possible), and *weight training* (most women usually work out with light weights two or three times a week).

In most instances, the only difference between the men's and the women's training program is the degree, although some top-notch women athletes train just as hard and long as men in the same sport.

There is no doubt we know how to train individuals physically. Training and conditioning the woman athlete to reach championship performance skill-wise is not the problem today. The problem is training and preparing the woman athlete psychologically. Women probably have more psychological hangups than men while competing because they have been led to believe that participation in athletics is unfeminine; society has taught the male to be aggressive and the female to avoid aggression (a trait needed for success in many sports); and Americans have become accustomed to an easy way of life, which makes it psychologically impossible for many women to adjust to the fact that there is no easy way to reach their maximum potential as an athlete.

Championship performance doesn't just happen. *It is earned.* I think that perhaps one of the worst things that has happened to athletics in the last few years is that it has absorbed many of the values of our overall society and has become just another place for permissiveness and lack of self-discipline. Too many athletes want everything given to them. Worthwhile things don't come to an individual as a handout. Things of value are earned by hard work, perseverance, involvement, and most times, by intense suffering. Few athletes recognize this concept today, which has resulted in more waste of talent than any one thing I know of.

Athletics and athletes are not the same as they were a decade or so ago. We have a new breed of competitor. Bobby Brown pointed out this change in speaking of George Blanda and his great competitive spirit. He said: "It's something that the American athlete has lost. You don't have the same fierce competitor you had 10 or 15 years ago. George may be the last of the breed. There are still great athletes, but little greatness in the athlete" (5:86).

It is this mental greatness in the athlete that we must try to regain through our coaching and teaching. Too many men and women turn away from sports because the sacrifices and discomfort of training do not correlate with the leisure-geared everyday life we lead. Our minds and mental attitudes are becoming as unfit as our bodies because we no longer see the value of struggle in our affluent society. We need to relearn the value of work.

Sometimes you learn lessons when you least expect it. I have a brother four years older than I am. I think many female athletes owe their early training to their older brothers because if they can't play hard enough to give the boys competition, the boys won't let them play at all. I just about broke my back as a kid trying to outplay, outrun and outshoot my brother. I couldn't think of anything worse than being sent in the house to play with the dolls — so I "hung tough."

Sometimes, I greatly wore on my brother's nerves. I remember the dumbest thing I probably ever did was to drop a sack of water on my brother's head from the second floor window of our house, a perfect drop. I had a second bag of water prepared just in case I needed it, but I left that bag right where it was when I saw the water start to boil on top of my brother's head.

When he started up the stairs to the second floor, I was faced with that decision you hear so much about, "fight or flight." It wasn't a hard decision. I flew out the back door.

I will never forget that foot race across the pasture. I was making a mighty effort to stay at least two steps ahead (which was slightly more than an arm's reach), and I was trying just as hard to keep my white tennis shoes clean. When things got too tight, I forgot about my white shoes and concentrated even more on keeping the two arms' length. I became completely committed to this race because I knew two things about my brother: he was very, very fast, and he would kill me for sure if he caught me.

I think this was when I first became aware of the importance of motivation in the performance of a physical skill. It was also when I found out what it means to get your second wind, and your third wind, and your 50th wind. It became evident that the ability to get your wind is endless if you have reason to push yourself beyond the pain of fatigue. A third thing I learned was that as long as everything else is equal, if you can endure fatigue even a second longer or a step longer than your opponent, then there is no way you can get caught to be killed. Believe me, the race is not always to the swiftest, but is often won by the person who sticks with it the longest. My brother must have run six miles that day. I ran six miles and two steps.

I learned a lot of things during that foot race. I learned the value of commitment and perseverance. I learned the necessity of enduring pain and fatigue if one is to survive an exhausting physical experience. And I learned that the mind can often make the body do things it doesn't want to do. I have never forgotten that lesson.

KEY FACTORS FOR CHAMPIONSHIP

Some key factors necessary in attaining championship performance under any circumstance and in any sport are: motivation, commitment and involvement, planned program to obtain objectives, perseverance, self-discipline, tolerance of pain and sense of humor.

Motivation

There are different reasons for and degrees of motivation. Athletes certainly have different reasons for participating in sport activities. Some seek status, others money, a few look for self-satisfaction and some have a combination of different motives. From personal experience I have found that the most lasting and satisfying motivation for an athlete is enjoyment of the movement experience and pride in playing the very best he can play. By enjoying our bodies and minds under all types of circumstances and by pushing ourselves to excel, we become aware of the self in all its complexity. Luckily, women have not been involved in sports as long as men, and the women's sports program has not become commercialized and exploited in the way the men's has. Most women play because they enjoy playing. I think John Baker expressed this well when he said:

> With men, the human element is often lost — winning is so important that they forget the personal experience that sports is supposed to be. Girls don't make that mistake. Why do they row? Because they like the exercise, they like sports. It's no different from what the men do, but no one asks a man why he rows. Enjoyment of sports is sex-blind. (2)

How long this will be true, I do not know. But if any of you want to do women athletes a favor, emphasize the importance of enjoyment, for unless you enjoy what you are doing, it is impossible to cope with the hard work and the struggle necessary to become a champion performer.

Commitment

The second thing that is important to the woman athlete is commitment. That saying, "If something is worth doing, it's worth doing well," is true. It doesn't make sense to put time and energy into something if you are going to do it only halfheartedly. There's a certain nobleness about commitment; it means the individual is involved on a *total* basis. The thing I notice the most about great athletes is this sense of complete concentration and involvement. Their minds and their bodies are not divided in attention; *they* are part of the action as much as the ball or bat.

Planned Program

Motivation and commitment alone will not make a champion. Too many athletes waste their energy and talents because they have no sense of where they are going or what they want to accomplish. They never realize they must plan their lives in order to obtain their goals. Defining objectives and setting up a planned program of training is a must for athletes today. There is so much going on that one must set up a priority of values and stick with it regardless of the temptation to do other things. It is too easy to have divided attention because of the diversity of activities open to young people. I am not saying the athlete should be a one-sided person and ignore activities that would add to her education or outlook on life. However, the athlete must eliminate unnecessary activities that distract from her main goals. She should decide what she wants to accomplish — whether it is making first string on her college team, making the Pan-American or Olympic team, etc. — and then plan her life to accomplish the objective. It is impossible to be involved in or excel at everything. One must decide what is really important and then be willing to give up less important things in exchange for the main objective. Everything doesn't have equal value. One must choose, and in choosing, one has the chance to channel her energy in a positive way.

Perseverance

The fourth important factor in attaining championship performance is perseverance. Many people never make it because they give up too soon. They just can't make themselves hang in there because they aren't psychologically prepared for continuous frustration and defeat. Most people would have quit many times under the circumstances George Blanda played under; he sat on the bench, he was traded, he was ridiculed and booed by the fans but he stuck with it for years longer than anyone expected him to and his perseverance paid off in one of the finest football performances ever seen. Mark Spitz bombed out in the 1968 Olympics and came back to shatter all records. Blanda, Spitz and many others have proved you can eventually earn your objective if you are willing to stick with it long enough. Sometimes it seems that one must prove he is capable of handling defeat before he is capable of obtaining victory.

One reason so many athletes are quitters before they have reached their goals is because there is so much stress on winning. Our athletic programs seem to be built on the premise that winning is everything. Consequently, continuous losers see no point in continuing to compete. Winning is not that important; it should never have been that important in our sports programs. Winning should be one of the by-products of having played well and outplayed the opponent but it should not be the only goal. Total involvement, perseverance under terrific odds, dealing with stressful situations with honor and decency and being completely and unequivocally in it — these are the important elements.

I feel as Tom Meschery felt when he was explaining why he quit coaching and playing. He said:

> It all starts in the Little Leagues and the Pee Wee Leagues. By the time a boy reaches high school, he is all "sloganed-out." He has been programmed to believe winning is everything. But winning is far from everything. If it were, losing would be nothing. And if losing is nothing, then sports should not exist. (3)

We need to re-emphasize the worth of taking part, the value of participation. If you can endure a stressful situation to the bitter end, you are not a loser.

Self-discipline

The only way to persevere is to exert self-discipline. Self-discipline is almost a forgotten word in our permissive society, but the athlete must learn to control her mind and body if she is to become highly skilled. One can't work with the mind and ignore the body in sports. Nor can one move the physical into all kinds of pretzel shapes and expect the mind to ignore the body. Self-discipline involves the total person. The difference between a poised player and a panicked player in a crucial situation is that the poised player has been disciplined for hard times. With our understanding of the effects of smoking, drinking and drugs on the body, a serious athlete would have to be utterly lacking in self-discipline to indulge in any of these because of their adverse effects on the body.

Tolerance of Pain

Another thing that helps in championship performance is a tolerance of pain. Athletics is such that it is impossible to participate without a certain amount of pain. How one accepts this pain and discomfort greatly determines how hard one can push oneself to obtain maximum performance.

Brian Job explained how pain in swimming affected him: "There's always a fear. You know you're not going to die, but you know that if you swim a fast time it will hurt so much, and you're afraid of that" (1).

Steve Prefontaine knew the importance of going on beyond the sense of pain in a performance when he said: "A lot of people run a race to see who is fastest. I run to see who has the most guts, who can punish himself into an exhausting pace, and then at the end who can punish himself even more" (4).

The athlete needs to remember that pain is relative. The more you are committed to a goal, the more you are willing to hurt to obtain it. Many times the athlete is not fully aware of the discomfort of competition until afterwards because he is so involved in the action that the pain seems inconsequential. Dionne Warwick sings a song that has a line that goes something like this: "How many days of sadness must I spend to get one day of gladness?" Sometimes, the athlete wonders how many days of pain must be spent before he gets one day of glory. But there is no way to push oneself beyond the normal boundaries without having to endure the pain of physical exertion. Pain is as much a part of athletics as pleasure. Pain tolerance is a prerequisite to championship performance.

Sense of Humor

Lastly, it helps greatly if one can maintain a sense of humor. Everything is so intense, so explosive during competition that it is easy for things to get out of proportion unless one can appreciate the humor in one's predicament. I have never seen a sports situation that wasn't more tolerable when players could laugh at themselves and with others. Note I said *with;* some players have been known to get their heads knocked off because the opponents thought they were laughing *at* them. If a player really enjoys competition, it's easy to maintain a sense of humor.

Other Championship Factors

These are just a few of the psychological factors that contribute to championship performance. There are many others that are probably just as important. Coachability, poise, self-confidence, natural physical build, and early background and skill instruction are among them. The list is endless when you start naming all the factors that influence the athlete's performance.

Keeping Championship Performance

Once a woman reaches championship performance, how does she maintain it over a long period of time?

First, she should ignore many of society's concepts in regard to the expected role of the man and the woman and of the aging process. Enjoyment of sports activities can be endless. It has nothing to do with which sex you are or how old you are. The belief that you should hang up your shoes when you are 30 and while you are ahead is ridiculous.

George Blanda, who made miracles at 44 seem commonplace, is proof of this. Bobby Riggs is another example that athletes can maintain a high level of skill as they get older.

Most athletes quit at a young age because it is expected of them, not because they no longer can perform well. However, it must be recognized that some physical qualities deteriorate with age — and that more effort must be exerted to keep the same level of fitness. Most athletes say their legs are the first to go — but in many cases the athlete can compensate for this lack of speed or decreased strength by better use of the mind.

Why aren't there any older women who are still outstanding in sports? Part of it is a product of our culture. Although men always have been encouraged to participate in sports, they are just now accepting the fact that they don't have to quit at an early age. It will probably be several years before women will accept the fact that they can continue to participate actively for many years if they are willing to put in the added effort and time to stay in top condition.

Personally, I don't ever want to get too old to play. I *love* physical activity and competition. At the age of 100, I expect to be the fastest woman on the block with my wheelchair.

I feel that right now I am in pretty decent physical condition mainly because I have stepped up my conditioning program in the last few months because I'm going to Europe this summer to bicycle for six weeks with five other people and I can't think of anything more embarrassing than being left behind by some young squirt.

In maintaining championship performance and a high degree of conditioning over a long period of time, one must first continually work out or there will be a regression of conditioning and performance. One must also expend greater effort to obtain the same degree of performance as time passes.

Second, one must realize there will be limitations to what one can accomplish as one gets older . . . but one must also be aware that the body and mind are marvelous machines that can do fantastic things when we demand fantastic things. Better use of the mental powers as the body ages can often compensate for any loss of physical skill.

Third, in maintaining championship performance, don't lose your enthusiasm or be driven away from your conditioning program by staleness or monotony. The hardest thing in the world for me to do is jog daily because the repetition of running laps or covering the same ground drives me up the wall mentally. I find I must occupy my mind while my body is busy with the jogging. Whenever possible, I change the location so the scenery is different.

Staleness is one of the worse enemies for the athlete who trains over a long period of time. Entering into other activities and using different methods for training, such as alternating interval and circuit training, are ways to eliminate staleness.

Lastly, mental attitude is the key to maintaining championship performance. If one wants to be physically fit and continue to participate as one gets older, and if one wants to be involved physically and mentally in an activity one has trained for sufficiently and continually over a period of years, there is no reason why one wouldn't continue to compete over a long period of time with a high degree of skill.

James Garfield said, "If wrinkles must be written upon our brows, let them not be written upon the heart. The spirit should not grow old." This is my hope for you and for all athletes . . . that your spirit will not grow old, for I think this is where true greatness of competition is. I hope that you will continue to enjoy the involvement of the whole person — body and mind — in whatever you do.

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Humanistic Psychology Perspective Applied to Coaching Women in Sports

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I will attempt to identify the perspective in psychology known as humanistic psychology by considering the basic goals, some underlying assumptions, and relevant definitions. Second, I will examine specific ideas within these goals and assumptions which I feel have implications for coaching. In this examination of implication, my comments are relevant to coaching *people* rather than women or men. My past experiences in coaching men's and women's teams have lead me to conclude that one coaches individuals and deals with individual differences which do not necessarily have a sex orientation.

Goals of Humanistic Psychology

Humanistic psychology focuses on the study of the psychologically well-developed individual or the positively healthy individual. It is a perspective whose intent is to study all that man is and can become. The development of the individual's potential is important — man's potential to be human, to understand self and others and to relate to them in human ways, to achieve basic human needs and to grow toward self-actualization.

Self-actualization, a term coined by Abraham Maslow, refers not only to an end state of positive psychological growth but also to the growth process of actualizing one's potentialities at any time, and in any degree. In individual terms, self-actualization means discovering who one is, opening oneself up to himself, identifying one's defenses and finding the courage to give up the defenses and be oneself, doing with one's life all that is possible. Self-actualization is the goal of sport experiences organized within the educational framework. The coach, in many instances, however, becomes an inhibitor rather than a facilitator in this growth process. The process of growing into the best human being one can be is intrinsic learning and most teachers and coaches have specialized in extrinsic learning. Coaching for self-actualization is subversive in a realistic educational sense; it liberates and strengthens the individual's autonomy. It accentuates individual differences and is committed to the emergence of the player's own unique self.

Assumptions of Humanistic Psychology

The perspective of humanistic psychology is based on several underlying assumptions:

1. Man's inner nature is good or neutral rather than bad; thus this inner nature should be encouraged to grow rather than be suppressed.

2. Man's inner nature is not strong and overpowering but is sometimes weak and subtle and easily overcome by habit and cultural pressures. Even though man's inner nature is denied or overcome, man is motivated by and persists in his drive to actualize his potentials.

3. Man has the potential to overcome his environment, to be autonomous. He has an intrinsic conscience based upon perceptions of his own nature, destiny, capacities and purpose in life. Such internal determinants insist that he be true to his inner nature and not deny it out of weakness. The individual who denies his talents perceives in a deep way that he has done wrong to himself and despises himself for it. One then has a personal integrity or imperative which very often is in conflict with a cultural integrity or a cultural imperative.

Experience and Humanistic Psychology

Humanistic psychology is not purely descriptive or academic; to fully understand it suggests action, implies consequences and necessitates direct experiences. The idea of experience as the basis of knowing sport is significant to the humanistic perspective. Experiential learning comes about by identifying one's actual behavior within an idea. Participation within an idea is a significant addition to learning *about* the idea. For example, there is a difference between knowing *about* anxiety and *knowing* anxiety in sports competition. The coach must encourage players to be sensitive to their feelings, reactions and meanings which are part of the total experience. This means that the coach must be ready to accept the feelings of players in all of their intensity and the expression of the self along a full continuum of emotion, including emotions we might consider not good as well as those we may want to happen. The coach, then, must be open to exploration of each player's emotional relationship with the sport since this emotional experience is essential to the growth of the self.

Women in Sport

Behaviors which may not be culturally acceptable for women in sport may emerge out of sport experiences which are very real for the individual; repression or punishment of the behavior does not eliminate the emotional experience which created the behavior. Let the individual player's personal integrity (intrinsic conscience) become stronger than cultural integrity; let her experience depth and intensity along a full continuum of emotions. So often in sport, we communicate to the players what to experience and what not to experience, what movements to make and what sounds to omit. Players are told what they *should* feel and what they should *not* feel. Coaches in the sport situations have the potential to destroy or create the humaneness of individuals and to create individuals who are acceptable to themselves rather than to society. The coach has the potential to desensitize or sensitize the player to feelings and experiences of self which are real.

If I were to ask about your goals and purposes of sport, or how you perceive competition for women or experience sport, I would probably hear as many different explanations as there are people. Whose explanations would be valid? Whose explanation would serve as the basis for the team which you coach? Your predetermined goals and purposes of sport are not necessarily those of your players.

If I am a woman on your team, let my experiences of goals, purposes, definitions of competition, and all the uniqueness which is me coexist so that I might actualize that potential which is me. My feelings and experiences validate sport for me. If you make the decision about what the goal is, you take away my ability to validate the experience. Facilitate my understanding of the relationship between my behavior and that of my teammates and opponents so that my motive for behavior emerges from an experience of humaness rather than appropriateness or acceptability within external structures. Give me the freedom to see myself as I really am, to test myself, to tap my full potentials but don't be my judge or jury.

Emotions as Disorganized Factors

Emotions can act as a disorganizing factor in sport when they intensely overwhelm the individual and are not in harmony with the individual's rational goals. However, these disorganizing experiences should not be excluded. They help the player understand the relationship between her emotions and her performance and this is better than having the coach tell her what might be wrong. These experiences have something to do with a sense of achievement, healthy self-esteem and self-confidence. The individual who has not conquered, withstood or overcome feels doubtful that she could. This is true for one's ability to control or delay one's own impulses, and therefore to be unafraid of them. Human beings play, take risks and flirt with intoxication for the sake of emotionally toned and motivated experiences. They want to be overwhelmed by emotion but only when they do not fear their emotions. To the extent that those emotional experiences reveal, foster and fulfill inner nature, they are positive experiences.

Freedom and Responsibility

The concept of the freedom and responsibility within the humanistic perspective refers to the individual's growth toward actualizing her inner nature (intrinsic conscience), being free to let this true self emerge, then being responsible for whatever consequences may result. The point at which the individual behaves according to her personal integrity and is responsible for her behavior represents the point at which she is psychologically free (autonomous) from her environment. There is a delicate balance between the safety of the environment and personal growth. The coach must set conditions for growth — nonjudging, unintruding, undemanding conditions in which the individual feels safe to risk being herself, where courage outweighs fear, decisions are real and not pseudo, and questioning, rejecting or accepting, examining, feeling and choosing are valid processes toward growth.

Perhaps we are quite unaware of our potential to be self-determining, to create change, to act and to cope with decision and responsibility. Perhaps the coach and players are so anxiously looking for rules and regulations to govern decision that they lose the awareness of their players' potentials for self-determination. Many sport situations are based on the concept and practice of superiority, a hierarchy of people, roles, ideas and behaviors which enhance and maintain self-perceptions of inadequacy, frustration and inequality as human beings. If there is to be freedom and responsibility in the sport environment, this would necessitate a new consciousness of potential, a change in self-perceptions and a realignment of ours and our players' self-image in relation to our perceptions of each other. Allowing a player to choose and be responsible necessitates that the coach be secure in her own self so that she does not *need* to be needed; so that the coach's feelings of adequacy are not based on the inadequacies of her players. We sometimes create images of "goodness," of being wise, knowledgeable within this hierarchy of roles which we have created and yet our own self-image is sometimes in opposition. We do not let ourselves emerge but rather let the hierarchy support and perpetuate personal inadequacy at the expense of individual freedom.

Divergence

The humanistic perspective necessitates that coaches and players be committed to *divergence* rather than convergence, although divergence in thinking, abilities, purposes, interests, behaviors, etc. does not always maintain and enhance our perceptions of roles and the goodness of ourselves as adequate. Divergence is threatening and often not understood. In a sport environment which fosters divergence, there is greater freedom and responsibility and fewer imposed rules of behavior and images to maintain. This allows increased freedom for significant emotional involvements in sport and more opportunities for feeling oneself as free and responsible. Personal involvement and growth are magnified and intensified at the risk of culturally "inappropriate" behavior. In the divergent environment there is opportunity for various modes of expression — for example, imaginative and perceptual basis for behavior. Performance is motivated by that which is actual and that about which I can dream (potential). There is freedom to confront great new possibilities never dreamed of before, to be caught up with an imaginative fascination which leads to discontent and, for those players who pursue it, a magnificent obsession with the actualization of the potential in sports. The coach who can imagine that which has not been, has the potential to set the conditions for this imaginative fascination. The coach who maintains the flexibility to be surprised by performance, and can accept the realities and dreams of individual greatness, will facilitate growth.

Synergic Behavior

The concluding idea about which I will comment is synergic behavior.[1] It deals with the function of behavior as opposed to actual behavior — *why* people behave in particular ways rather than *how* they behave. Sport becomes an environment in which my behavior is an advantage to me as well as to my teammates and opponents, rather than an advantage to me and a loss to others. When I pursue my interests, it benefits others rather than sets me against others. Thus, my competitive behavior in sports leads to your achievement and growth as well as mine. The higher my level of performance, the greater will be your challenge to perform well. If I return the tennis ball as close to the line as possible, I not only must play my best, but I ask you to play your best if you are to be successful in returning the ball. If I do not play my best and give up, I have taken away the opportunity for both of us to actualize our potentials. Within the idea of synergic behavior, winning and competitive behavior are not in conflict with growth. The crucial question is, What is the *function* of winning and competitive behavior? I believe that the concept of mutual advantage among teammates is significant to effective team performances. If you do not play well, I may not play well and so our caring about each other's performance level is of mutual advantage. Within the humanistic perspective, the synergic function of the competitive behavior, and the humaness which is part of it, represent the winning edge for the growth of both teams and individuals. A question which often comes up is whether an individual is necessarily lost in a team situation. It is possible for both to exist with the synergic behavior concept.

Public Attitude Toward Women in Sports

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A current question in sports for women today is, "Is competition physiologically and psychologically different for women than it is for men?" There are probably as many old wives' tales about the dangers and pitfalls of competition for women as there have been fairy tales written. The two sexes are by far more alike physiologically than they are different in the factors of greatest importance to training and conditioning of the body for athletic competition. Some women place far too much concern on being different. It is generally known that the functioning of the body is the underlying basis behind any athletic performance. The functioning efficiency must be improved for good performances by either male or female. Vast, immense and extreme are often used to describe the differences between male and female performers. Athletic training, however, does have the same basic physiological effects on the female organism as it has on the male. Some of the usual effects of training and conditioning are:

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[1] This term was introduced by Ruth Benedict. Maslow has tried to explore the idea in terms of interpersonal relationships.

1. Lower resting heart rate
2. Lower oxygen utilization for the same amount of work
3. Greater oxygen uptake capacity
4. Greater oxygen debt tolerance
5. Increase in heart volume
6. Increase in blood volume
7. Increase in total amount of hemoglobin
8. Increase in strength, endurance, power and flexibility.

The extent to which any or all of these adjustments are made depends upon the sport and particular event for which the athlete trains. Research indicates, however, that these changes have been observed in female athletes as well as in male athletes. As far as the psychological implications are concerned, based on my observation, the top women competitors in individual sports are not very different from the top male competitors. They tend to have great achievement needs to be very disciplined, to exhibit dominance; they are rather aggressive and tough-minded, have self-assurance and are very self-sufficient. Many of them exhibit leadership qualities and are very independent; on the other hand, there are some girls who do not exhibit these leadership qualities and are not strongly independent. I have noticed that some girls (and I'm basing this primarily on my experience in working with the girls on the Olympic Teams) are self-centered and unwilling to be involved in the lives of others.

Similar characteristics have been observed readily for some outstanding girls on my university team and club team. The better girls tend to be tough-minded, better disciplined, more self-assured and self-sufficient than the would-be potential champion on the team. We have a few girls on the team who are not tough-minded, and one wonders why they are out for the sport; but then you work with these girls to try to bring them along. We also have those who are not very disciplined and such a person will not be able to reach her ultimate achievement level. As far as the psychological implications are concerned, there is a great deal of similarity in the characteristics of the highly skilled women and men.

Public Attitude

The public attitude toward women in sports generally has improved over the past 10 years, but I think it still has a long way to go before women will feel they have equal opportunity for their athletic abilities regardless of age, race, talent or social status. Women in competitive sports find an obvious form of discrimination against them, especially in the United States. It is reflected in such areas as facilities, equipment, budget, opportunities, honors and rewards. In many cases women are restricted by law, administrative regulations and traditions from sharing the athletic resources so abundantly available to men. Today the public attitude is quite varied, ranging from complete support of the program, to partial acceptance, to complete rejection.

Here are some comments I have heard concerning complete rejection of the program:

1. Participation in competitive sports would put a nervous strain on the performer. They get this from the excitement of the competition before and during the game.

2. Time would be lost from academic work because of the need to travel, practice and play. Is it really worth it?

3. If you have a competitive program for skilled girls, what opportunities will be available for the other girls?

4. The intense competitive system is not productive for the better girl or woman.

5. The one idea of winning brings into its wake the inevitable qualities of rowdyism.

6. Undesirable newspaper notoriety would come from participation.

7. The sense of value would become distorted and this is what happened to the men's program.

8. The values achieved are not worth the time spent to achieve them.

9. Intense athletic participation has a questionable effect on childbearing.

10. Membership on varsity teams would curtail a girl's freedom to pursue normal trends of school life.

The following are some of the comments I have heard concerning rejection because of men coaches:

1. Men coaches tend to use boys' standards on girls.
2. This is not fair to the girls because they have different achievement levels.
3. Girls will not discuss their problems with a male coach.
4. Women should be leaders of girls.
5. Men do not realize girls' physical limitations.
6. Men invariably train for specialization.
7. Men have no patience with weak or inexperienced girls.
8. Men, as a rule, do not have an educational attitude toward athletics.

In the area of partial acceptance of women competing, I've heard these comments from administrators of both sexes:

1. You may have a program but girls cannot practice in the gym at the same time the boys' team is practicing because they are distracting and might interfere with the boys' team.

2. A girls' team should always be coached by a woman. Since women coaches are not available, you can't have a team.

3. Girls' sports are too costly and we don't have the space to accommodate them.

4. You may have the competitive sports program, but the only time you can have the swimming pool is between 9 and 10 at night, or the gym between 5 and 6 in the afternoon (that's supper time don't forget), or the track between 7 and 8 in the morning.

5. We have a girls' gym and a boys' gym. The girls' gym *was* used for wrestling and junior varsity basketball; now we must share the girls' gym with the girls.

6. I think girls deserve the right to participate but to a lesser degree than boys.

7. If they go too far with this competitive stuff, they will lose some of their femininity.

8. Girls do not have boys' fighting instinct and therefore, they cannot play the five-player game in basketball.

9. Girls should never be coached by men because the men will take advantage of young girls.

10. I have nothing against them participating, but they will not participate in *my* program.

Here are some comments on competition with boys:

1. Girls break bones more easily than boys.

2. Junior high school girls' reflexes are generally slower.

3. Girls in little league softball would require special chest protectives which are just not available. (Incidentally, this comment came from the director of their central states program.)

4. We cannot afford to have two competitive programs, one for girls and one for boys. If girls can make the boys' team, they will be allowed to place. Well, you can imagine how many girls can make the boys' team.

5. Girls are the weaker sex, boys should not be beaten by girls; it's not good for their morale.

6. Athletic competition builds character in our boys, but we don't need that kind of character in our girls.

7. We will give her the opportunity to compete but we will not encourage her.

Financing

There are other discrimination factors that are obvious. For example, a professional sportswoman is paid one-fourth of what her male counterpart receives for the same work. In a Southwestern state I understand that women officials in girls' volleyball games receive about $6 for a game whereas male officials for girls' volleyball receive $12. Other discrepancies occur in amateur sports. I can remember that when I was chairman of the Women's AAU Track and Field Committee, the AAU allocated funds to bring some men's relay teams to the indoor Nationals, but I could never shake enough money loose for some of the women relay teams.

Financing a program is perhaps one of the greatest concerns. In an Eastern city the school board budget for a particular year was $90,000 for extracurricular sports for boys but only $200 for girls' sports. The next year boys' sports received $110,000 and the girls received $300. When this policy was questioned, it was pointed out by a school board member that the girls' budget had been increased by 50 percent, while the boys' was increased by only 30 percent. Throughout the United States, there are many communities where tax-supported school systems offer no athletic program for half of their students — the female half. In colleges the difference between resources devoted to men's and women's athletics is greater than that in secondary schools. However, we must understand that the programs are relatively new but adequate resources should be made available so girls can have adequate equipment, facilities, etc. The amount of money available to support a competitive program for girls varies among schools. I know of some schools in which the girls do not have any uniforms — they have to buy their own equipment and tape and on overnight trips pay for their fare and meals (that's one extreme). The other extreme is that some programs have such funds that the girls can fly to meets and have all expenses absorbed by the school.

Media Coverage

Newspaper coverage is another problem. The amount of coverage given to women in sports is very small. If you scan through the sports section on a weekday, you will find one or two articles, perhaps more on the weekend. The few women's sports stories which do appear generally lack quality. The gist of the report is that here is an unusual and mildly humorous happening. Rather than describing how well or badly the girls perform or how the contest came out, reporters tend to concentrate on the color of the girl's hair or eyes or the shape of her legs, and so forth.

Television is another problem. Only recently have the networks carried a full program of women's sports events. Because program directors are a little skeptical about this, they will include women with men in the belief that they will lose their audience if the program is devoted entirely to women. CBS, with its AAU Track and Field Series, was one of the first networks to have a full one-hour program devoted to women's sports. I understand that NBC carried live one hour of sports devoted to women between August 1972 and September 1973, and that was the finals at Wimbledon. That was one hour out of 366 hours of sports. This year CBS plans to devote 10 hours to women's sports and 260 hours to men's sports.

The American system of sports has ample and logical reasons for believing that the system is not only sexist to its roots, but very hypocritical. On the one hand there is a public-supported assumption that athletics are good for people and that participation in competitive sports develops better people and better citizens. It builds a strong mind, a strong body; it builds a better society. Yet, when it comes to acting on this notion, attempting to participate in meaningful ways, most girls shortly learn that there is another assumption that is seldom articulated, which has to do with girls playing the game. This assumption is that sports are good for people, but much better for men than for women. This assumption is supported not by rhetoric but by the tax dollar, by laws, in a web of hard-to-isolate but potent traditions and prejudices. Currently, opportunities for women to participate in sports are so enormously unequal to those available to men that it is something of a cop-out, a cover-up, to designate women as second class citizens of America's athletic world.